PROGRESSIVE ARCHITECTURE

A Reinhold Publication • April 1970



A Spectrum of Housing



The tight, mottled graining of Imperial Modern Excelon (vinyl-asbestos) Tile helps conceal scuff and heel marks... so the floor stays crisp looking and clean with a minimum of regular maintenance.



This is the striking, new Leeds & Northrup administration building in North Wales, Pa. The tone of the building's exterior, established with bold sweeps of simplistic lines, carries through to the interior with the crisp, dynamic look of Armstrong Imperial Modern Excelon Tile.

ARCHITECT/INTERIOR DESIGNER: Vincent G. Kling and Associates, 1401 Arch Street, Philadelphia, Pa.
GENERAL CONTRACTOR: John S. McQuade Co., 1332 Parrish Street, Phila., Pa.
FLOOR CONTRACTOR: W. S. Holmes Inc., 1025 Mt. Ephraim Ave., Camden, N.J.

While Imperial Modern Excelon is rich in appearance, its cost makes it ideal for a controlled budget. In fact, there's no difference in price between Imperial Modern and Armstrong Standard ⅛" Excelon Tile. And since the contemporary, mottled pattern goes all the way through the tile, the design and color will last the life of the floor.



Floor planners chose Imperial Modern Excelon because it coupled durability, ease of maintenance, and low cost with an outstanding appearance . . . an appearance that completes a sense of unity between exterior and interior.



The planned floor.

80,000 square feet planned for dynamic looks and realistic costs.

Planner's choice: Imperial® Modern Excelon® Tile.

Armstrong

Why not contact your Armstrong Representative the next time you're planning a floor? He can show you the largest, most exciting line of resilient floors available to you. And he'll help make sure that all flooring requirements are met precisely. Or write us directly: Armstrong, 504 Watson Street, Lancaster, Pa. 17604.



On Readers' Service Card, Circle No. 329



Cover: A beach house designed by Richard Kaplan. Photo: Jeffrey Foxx.

P/A THIS MONTH

Progressive Architecture® April 1970



A Spectrum of Houses

Beginning with introductory comments, which include a discussion by Edgar Kaufmann, Jr. about the Metropolitan Museum of Art's exhibition featuring a century of architect-designed houses, P/A presents a broad spectrum of the housing industry — from the individual house as a work of art to industrialized housing in the market place. **80**



The Right Angle for Steel

An architect's own house makes unique structural use of a 32 in. module, panelization, and a shop-fabricated steel framing system. An innovative surfacing of sand, glass, and acrylic resin is applied on both interior and exterior walls. *Denis Charles Schmiedeke, Architect.* **82**



Extensions of a Design Device

Two houses at The Sea Ranch show use of the same basic design device to achieve opposite ends. While both are planned around central spines, spatial organizations vary considerably because of different site conditions. *MLTW/Moore Turnbull, Architects.* **88**



Forms as a Kit of Parts

Six beach houses, of which four are adjacent, demonstrate the use of simple and familiar forms as a kit of parts with which to compose varied and different environments. *Murphy-Levy-Wurman, Architects.* **94**

Villa Saltzman

Conceived in the Le Corbusier tradition of man-made form versus nature, the architect coordinates two structural systems to achieve visual qualities seldom seen in the master's work. *Richard Meier, Architect.* **100**



Ordinary as Artform

A conventional beach house by Architects Venturi & Rauch is the first house to illustrate Robert Venturi's theories of "Ordinary Architecture." *Venturi & Rauch, Architects.* **106**

A Contrast of Scale

A house on a typical suburban lot presents a massive façade to the street, yet contains a personal-scaled courtyard for its occupants. The house is organized around the courtyard and is nestled into a natural bowl on the site. *Frank Schlesinger, Architect.* **110**

Bridges to a Vista

In order to take maximum advantage of a sloping site and ocean views, a modest beach house consists of two self-contained and juxtaposed units joined by a series of outside bridges and stairways. *Richard Kaplan, Architect.* **114**



Operation Breakthrough: Operation P/R

Is Operation Breakthrough a breakthrough in design or public relations? P/A provides an in-depth analysis of this HUD sponsored program to spur involvement of industry in housing construction. The design submissions selected by HUD are appraised for their architectural and technological contributions. **120**



Forgotten Breakthrough, 1941

A Defense Housing Program using prefabricated housing techniques was implemented at Indian Head, Maryland in 1941. Besides harnessing industry to provide innovative solutions to the housing problem, the project bore other similarities to the present Operation Breakthrough program. The authors are H.Z. Rabinowitz and James Stanek, a systems analyst and systems designer. **134**



General Contractor as General Motors

A foremost authority on prefabrication and industrialized housing points out those aspects of the automotive production process that can be rationally applied to industrialized housing. The author is Richard Bender, Professor of Architecture, College of Environmental Design, University of California at Berkeley. **138**

Departments

Special Book Review

Percival Goodman, reviewing six books on city planning, asks whether the descendants of goats that chewed the grass of Rome's 6th-Century Forum will survive to graze on the streets of our own central cities. **148**

Your Point of View 8
P/A News Report 28
Products and Literature 51
Editorial 78
Specifications Clinic 144
It's the Law 146
Jobs and Men 206
Directory of Product Advertisers 210
Readers' Service Card 213

Editor
Forrest Wilson, AIA, CSI

Executive Editor
Burton H. Holmes, AIA

Senior Editor
C. Ray Smith, AIA

Associate Editors
Don Raney
Stephen A. Kurtz
David A. Morton
Suzanne Stephens *News*
Esther McCoy *Los Angeles*

Administrative Assistant
Charlotte Van Voorhis

Copy Editor
Joyce Reback

Assistant to the Editor
Rosemary Lacerenza

Assistant Editors
Chet Mantolesky
Karl Vossbrinck

Editorial Assistant
Rose Calomino

Graphics
Joel Petrower *Art Director*
George Coderre *Assistant Art Director*
Anne Marie Sapione *Art & Production*
Nicholas R. Loscalzo *Architectural Drawings*

Contributing Editors
Norman Coplan *It's The Law*
Bernard Tomson, Hon. AIA *It's The Law*
E. E. Halmos, Jr. *Washington/Financial*
Harold J. Rosen *Specifications Clinic*

Publisher
Philip H. Hubbard, Jr.

Associate Publisher
Harrington A. Rose

Wolcott H. Johnson *Adv. Sales Manager*
Burchard M. Day *Promotion Director*
Joseph M. Scanlon *Production Director*
Daniel H. Desimone *Adv. Production Manager*
Paul D. Puskas *Circulation Director*
Sue Feldman *Subscription Manager*

Progressive Architecture, published monthly by Reinhold Publishing Corporation, 600 Summer Street, Stamford, Conn., 06904. A subsidiary of Litton Publications. Philip H. Hubbard, Jr., President; Harry I. Martin, Group Vice-President; Charles O. Bennewitz, Treasurer; Kathleen A. Starke, Secretary; Robert W. Roose, Vice-President. Executive and editorial offices, 600 Summer Street, Stamford, Conn. 06904.

Subscriptions payable in advance. Publisher reserves right to refuse unqualified subscriptions. Subscription prices to those who, by title, are architects, engineers, specifications writers, estimators, designers, or draftsmen, and to government departments, trade associations, above title groups on temporary military service, architectural schools, architectural students, advertisers and their employees: $5 for one year; $8 for two years; $10 for three years. All others: $10 a year. Above prices are applicable in U.S., U.S. Possessions, and Canada. All practicing architects and engineers outside these areas: $10 for one year; $16 for two years; $20 for three years. All others: $20 a year. Single copy $2, payable in advance. Indexed in Art Index, Architectural Index. Second-class postage paid at Stamford, Conn., and at additional office. Volume LI, No. 4, Printed in U.S.A.

© 1970 Reinhold Publishing Corporation, All rights reserved.

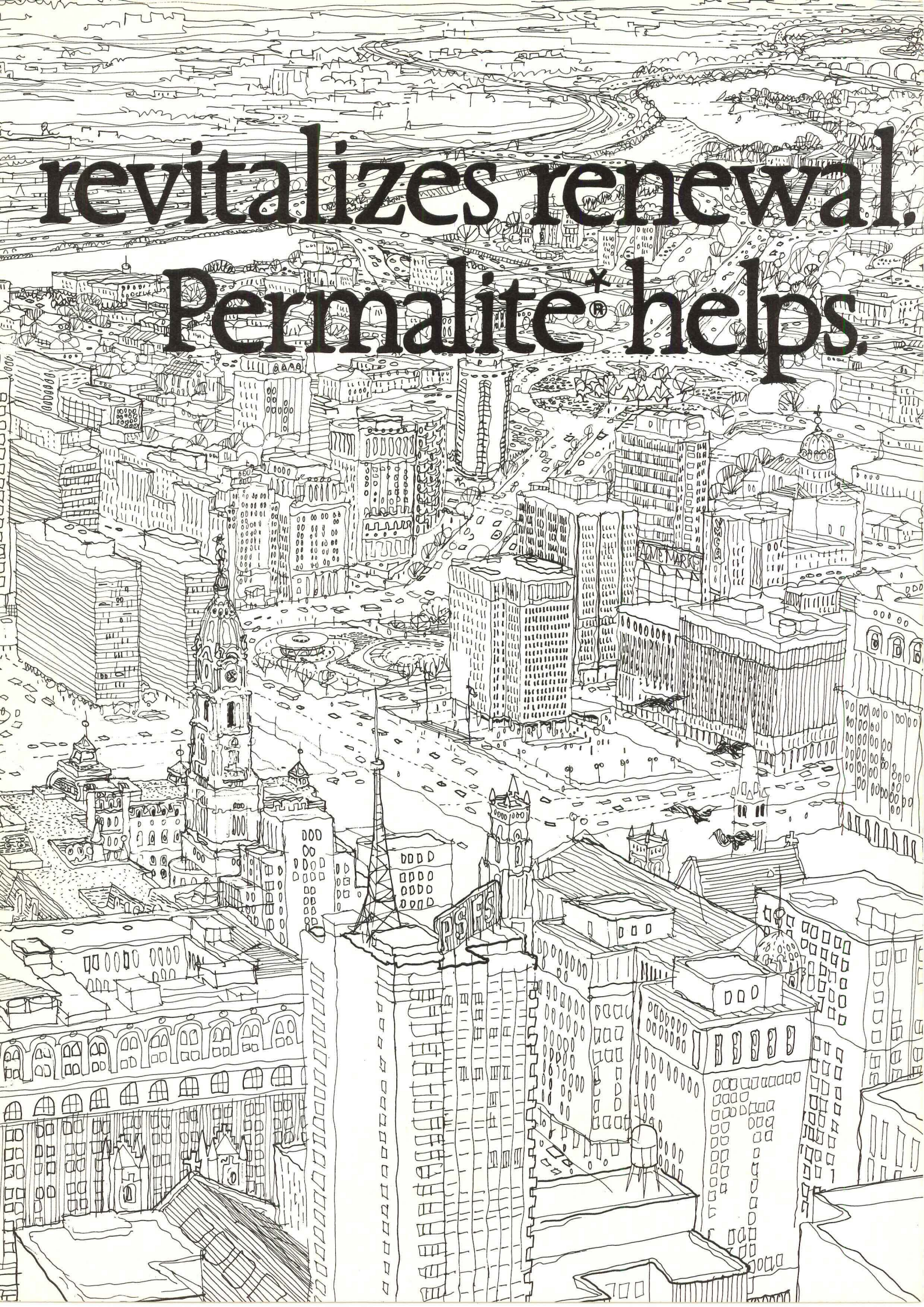


Philadelphia is pioneering in renewal again. The aim of its revitalization program is to lift not only the face, but the spirit of the city as well. Low-income housing, new schools, new industrial plants, new job opportunities are part of the Philadelphia plan. Permalite Sealskin rigid roof insulation is being specified for many new and reconditioned buildings because it carries with it the reassurance of wide code acceptance. Permalite is approved for FM Engineering Division Insulated Steel Deck Class 1 construction (fire and wind uplift); Underwriters' Laboratories Inc. Metal Deck Assemblies Constructions Nos. 1 and 2 and others. GREFCO, Inc., Chicago, Los Angeles. A subsidiary of General Refractories Company. ■7.

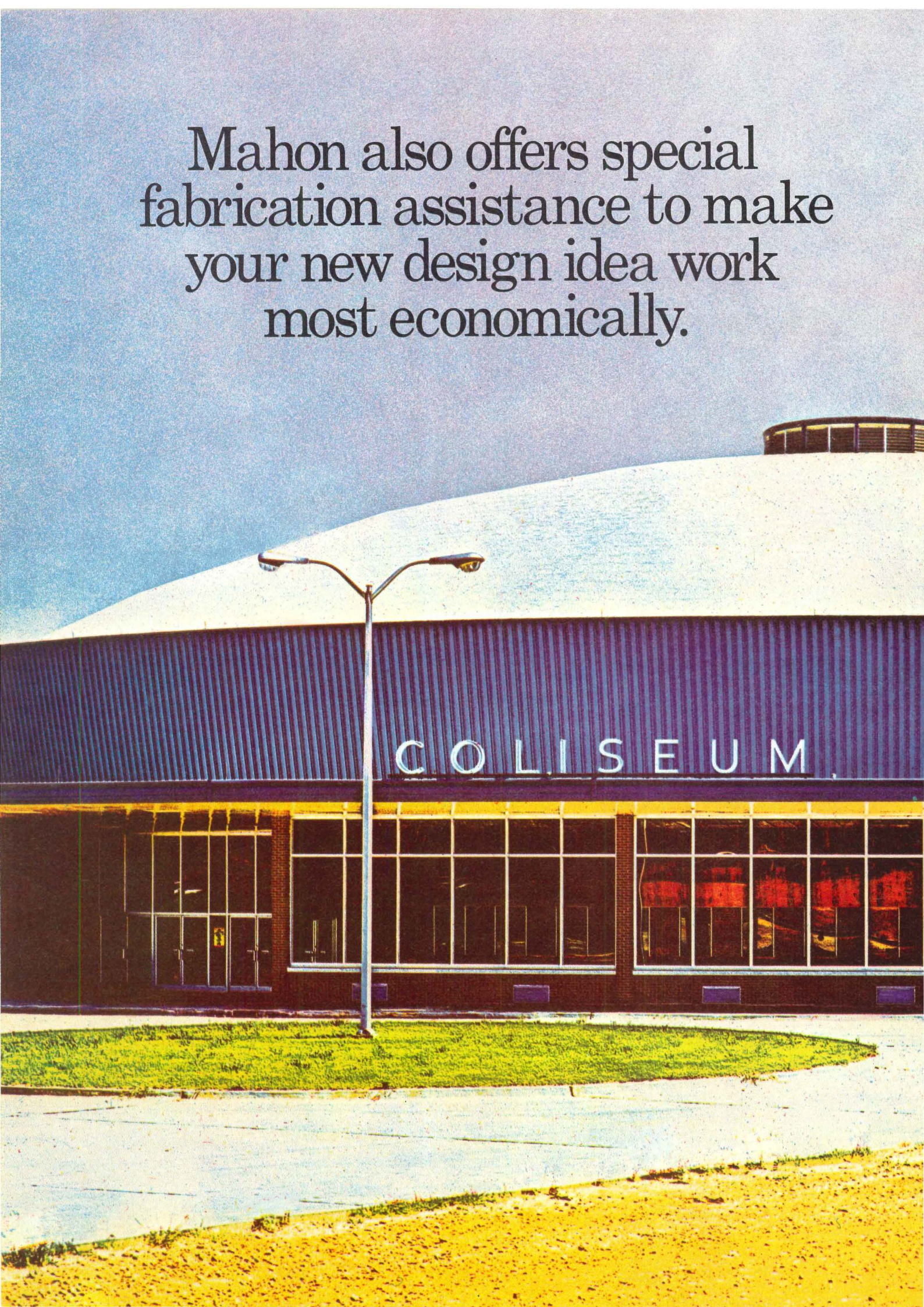
Permalite*®
RIGID ROOF INSULATION

On Readers' Service Card, Circle No. 388

No. 4 in a series of illustrations of major American cities. For a reprint of the original rendering by Friedrich Schonbach, suitable for framing, write: GREFCO, Inc., Building Products Division, Dept. B-4, 333 N. Michigan Avenue, Chicago, Ill. 60601.


revitalizes renewal.
Permalite® helps.

Mahon also offers special fabrication assistance to make your new design idea work most economically.



Mahon offers you more than a versatile source of supply for a wide range of standard wall panels. We'll also work with you to fabricate special configurations for non-standard applications, to help transform your new design idea into an economical, functional reality. Naturally, we also offer a wide selection of panel coatings, in a full spectrum of colors, to carry your idea to completion.

Example: For the building shown below, we fabricated and finished special exterior wall panels with an unusual configuration derived from a partial cone section.
Building designs differ, but Mahon's cooperation and ability-to-deliver never changes.
The R. C. Mahon Company, 34200 Mound Road, Sterling Heights, Michigan 48090.

MAHON

is ideas in building products

On Readers' Service Card, Circle No. 337

Derived from a photograph of the
University of Mississippi Assembly Bldg.
Architect: Brewer, Skews & Godbold
Contractor: Contractors Material Co.



YOUR POINT OF VIEW

Co-op City Controversy

Letters to the Editor

Sir,

When Vincent Scully discovered in Robert Venturi the missing link between Michelangelo and Le Corbusier,[1] he deplored "that few of the present crop of redevelopers can yet endure him." The critique of *Co-op City, Learning to Like It,* by Venturi and his wife (P/A, Feb., 1970) promises an end to this deplorable discrimination. His call for the lowest building denominator, giddily disguised as the architect's duty to "rejoice in ordinariness . . . on its own terms," has replaced his earlier celebration of "crowded intricacies and deliciously stimulating contradictions" illustrated by the churches and palaces of the socially elect. Future "crops of developers" cannot afford to overlook the touching conversion of an academically pedigreed name to their old filthy game of architect-baiting. Without identification or illustration, the asocial, wasteful incompetence of "Brand X" housing, designed by a "famous architect," is contrasted with the brilliance of Co-op's Herman J. Jessor, "giving the people something they want" at half price.

There is absolutely no argument possible over "what the people want" when the people have no alternative, nor about the monotonous refrain of "where is the money?" On Mr. Jessor's level of intelligence and ethics, the mere suggestion that designed environment represents a long-range investment value in the historical role of the city as a cultural generator, is ridiculous. But it is profoundly shocking that an architect whose "primary inspiration would seem to have come from the urban facades of Italy . . . complex spatial containers of streets and spaces"[2] should so cleverly ignore the deadly antiurbanism of this project. This is not, as claimed, a rehabilitation. It is a high-rise subdivision whose nonprofit profits support an administrative bureaucracy. The scattered towers stand on wasteland, hemmed in by a hopelessly polluted and commercialized inlet and a network of thruways and high traffic expressways that make connections even with the shacktown along Gun Hill Road a precarious venture for children and the elderly. Venturi blames the architect-urbanist for confusing cities with housing, as if the only reason for housing were not the economic opportunities of the city. Without a blush the smelly red herrings of "community autonomy and decisionmaking by vote" are served to gloss over the tight income and occupancy regulations, the deliberate flaunting of crime statistics in high-rise elevator projects, and the appalling transportation conditions for the breadwinners of Co-op City.

In a Portnoyesque gesture, Venturi quotes the Las Vegas Strip in support of a timid plea for "traditional piecemeal city building techniques," oblivious of his earlier indictment of "the endless inconsistencies of roadtown, which is chaos, or the infinite consistency of Levittown, which is boredom." The architect's role, whether he builds "Brand X" housing or a city hall, is that of an irritant whose paradigmatic solutions will spread gradually to the anonymous mass-production level — as they do everywhere except in North America. Behind a spurious altruistic facade, the game of highest return on lowest investment, whether played with private or public funds, implies a gross debasement of the masses. It denies that "the city is the teacher of man," as Plutarch said a long time ago. To sell out to the perpetrators of this reactionary fraud is to sell out the future of cities, architecture, and personal integrity.

Sibyl Moholy-Nagy
Columbia University

[1]Robert Venturi, Introduction to *Complexity and Contradiction in Architecture,* 1966.
[2]Scully, *op. cit.*

Dear Editor: Your article on "Co-op City-Learning to Like It" (Feb. 1970) shocked us into the awareness that only one year after the election of the Nixon administration, its message has penetrated even the field of architectural criticism.

In tune with the present era, the Co-op City survey by Robert Venturi raises the ghost of a "silent majority architecture." Venturi demonstrates perfect fidelity to status quo doctrine by basing his argument for Co-op City's coarsely scaled and lifeless community on grounds of lowest cost and the implied endorsement of existing subsidy policies.

His arguments should warm the hearts of all those who think our national priorities and the financial resources allocated to them are "all right."

Ulrich Franzen
New York, New York

SARA, CIF, etc.

Dear Editor: I am very encouraged by the enlightened attitude of P/A in carrying out its policy of bringing to the attention of the profession information regarding the Society of American Registered Architects, one of the most timely forces which has injected itself into the rapidly increasing changes in the profession and is attempting to bring to the attention of all architects the need for recognizing the importance of either growing into the twentieth century or being relegated to a secondary role in the accomplishment of its purposes.

It is interesting to find on the same page, a report on CIF, and most discouraging to discover that what CIF is attempting to do is to continue to mess with existing standards which every architect should be well acquainted with from the first day of his registration. It is rather discouraging to learn that CIF "plans to recommend changes in legislation, write documents, and assemble pertinent information for the use of the construction industry." It appears to me that the American Institute of Architects has been formulating such programs for many years and has published reams of such documentary information for the use of the profession.

I look forward with continuing interest to your further presentations of the programs for the Society of American Registered Architects.

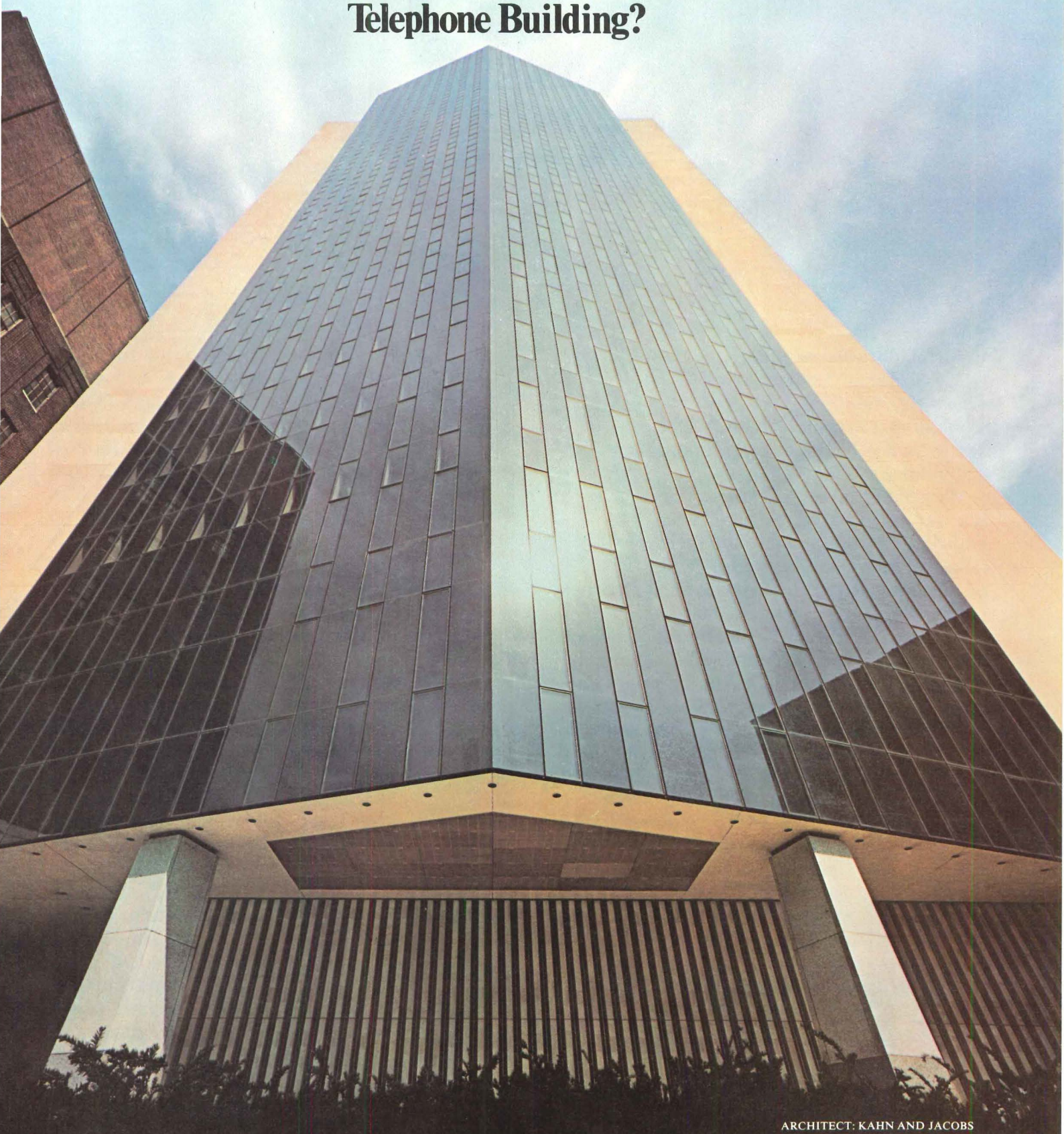
John R. Hellman
Hellman Kempton Associates, Architects
Falmouth, Mass.

Sorry

Dear Editor: We request that you publish a correction of our firm's name as consulting engineers for the Richard Feigen Gallery (P/A, Feb. 1970, p. 95). The name of our firm is Flack & Kurtz; not Slack & Kurtz.

Norman D. Kurtz
New York, N. Y.

What's new about the new New York Telephone Building?



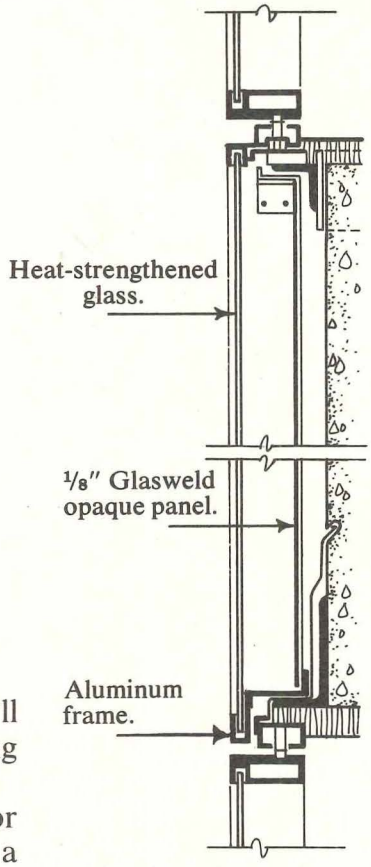
ARCHITECT: KAHN AND JACOBS

Among recent additions to Manhattan's skyline, one of architectural distinction is the 24-story building of the New York Telephone Company.

One of its unique features is the way in which black Glasweld® was incorporated in its window wall design. Glasweld was used as an opaque panel behind glass in the spandrel area. (See installation diagram on the next page.)

Why put Glasweld *behind* glass when it retains its look of newness for years on exteriors with no protective cover at all? Because it enabled the architects to emphasize the verticality of window treatment—an element of design that greatly enhances the building's striking appearance.

This unique use of Glasweld exemplifies the versatility of the material or how—in the hands of innovative architects—it can be used to achieve distinctive effects.



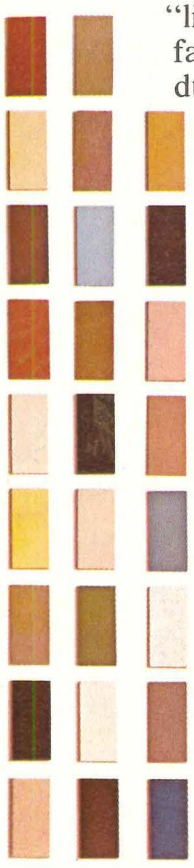
Section through Exterior Wall, New York Telephone Building.

Colorful, durable, versatile Glasweld® for skyscrapers or low-rise buildings.

Look almost anywhere today. You'll see evidence of the ever-widening acceptance of Glasweld.

Why the upsurge in its uses? For one reason, Glasweld comes in a choice of 26 colors that retain their integrity for years on exteriors and in interiors. Regardless of the most rigorous climatic or environmental conditions.

In fact, Glasweld installed on buildings more than ten years ago still retains its original condition – a testimonial to the material's long "life expectancy." Indeed, the surface of Glasweld is comparable in durability to the best grades of exterior porcelain enamel and ceramic tile.



But durability and looks aren't everything. Equally important, Glasweld is easily and quickly installed. It's also simple to cut and drill. Only ordinary power tools are needed.

Glasweld is economical, too, when it comes to maintenance. It requires no painting or refinishing for at least 15 years. Cleans easily, too.

It keeps a visually flat appearance when properly installed according to U.S. Plywood instructions. Rustproof, incombustible (U.L. fire hazard classification 0-0-0), waterproof and virtually impervious to stains.

Glasweld is also noted for its immense versatility. It has been widely used for curtain wall panel facings, fascias, soffits, opaque window inserts, balcony panels, and interior linings. Moreover, it is an excellent material for use in rooms – such as laboratories – that must be kept dust-free. Since Glasweld is virtually free from static buildup, dust will not readily cling to its surface.

New textured Glasweld.

In addition to standard Glasweld in a range of 23 colors, U.S. Plywood, recognizing that architects have many uses for textured materials, now offers new sand-surfaced Glasweld with a distinct textured appearance. The new textured designs of Glasweld include Rhine Sand, Moselle Sand and Champagne White Sand. (As shown at left.) And the aggregate is adhered with an inorganic bond.



These new textured designs retain all the qualities for which standard Glasweld is noted: durability, decorative value, and economy.

Plain or textured, Glasweld is a product of unusual practicality in terms of initial cost, installation savings, long-time service and durability for either new construction or modernization.

For further information on Glasweld, call the Architects Service Representative at your nearest U.S. Plywood office or write:

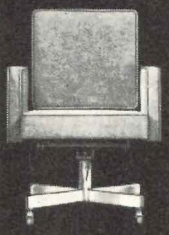
U.S. Plywood

A Division of U.S. Plywood-Champion Papers Inc.
777 Third Avenue, New York, New York 10017

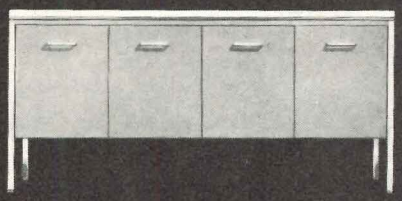
On Readers' Service Card, Circle No. 354



Choice of two furniture series
for contemporary office concepts



Seating to supplement
every design arrangement

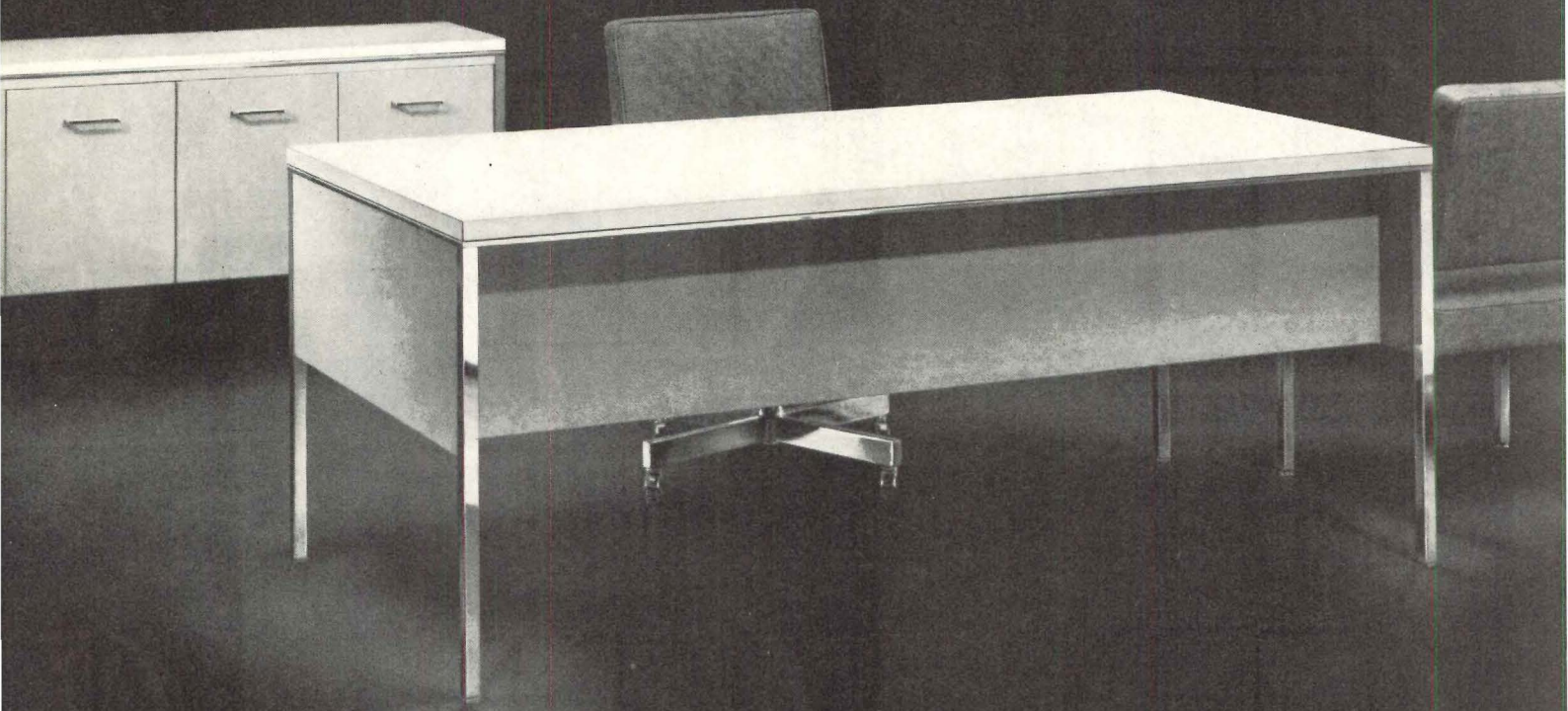


Complete complement of
credenzas—in two depths

All-Steel®

versatile

Yet very individual. Select from incomparable furniture lines, finishes and fabrics in an inspired spectrum of colors and textures to impart infinite expression to your design. All-Steel Equipment Inc., Aurora, Illinois 60507. Showrooms in New York, Chicago, Los Angeles, Aurora. Canada: B. K. Johl Inc. Montreal, Toronto, Vancouver.



One of the C.I.T. companies

On Readers' Service Card, Circle No. 328



At Mississippi Power Company PPG Performance Glass looks great, keeps people comfortable, and saves money. Even after a hurricane.

PPG Performance Glass enabled the designers of Mississippi Power Company's "electric light showcase" to achieve exactly the esthetic character they desired . . . both in color and reflectivity . . . and open up their building's view of the beautiful gulf coast. More than they thought possible.

Many factors affected the selection of *Solarban*® *Twindow*® Units besides the good looks and the good view, however. *Solarban* Units significantly reduced the complexity and operating cost of the HVAC System. They contributed to total environmental comfort for the building's occupants. And they offered adequate strength levels so important in this tropical storm belt.

The building's "heat of light" system incorporates simultaneous control of air temperature, humidity, cleanliness, and distribution.

Under summertime conditions, the reflective *Solarban* Units assist this environmental control by turning back much of the solar radiant energy rather than permitting it to become a load on the cooling system.

Even on chilly winter days, enough heat is produced by the lighting alone to require some cooling of the room air (with outdoor temperatures down to 40 F) before reintroduction. The same low-emissivity reflective coating on the *Solarban Twindow* Units (normal insulating glass constructions with a ½" air space) enables them to perform like triple glazing in reducing conducted heat loss. No chilly downdrafts, no condensation. And no supplementary perimeter heating devices are required.

As John Borum, Consulting Mechanical Engineer, said: "The premium cost of this glass could be justified not on an air or tonnage savings necessarily . . . although there was that . . . but, more importantly, on the reduced sophistication of the mechanical system required. If you don't have a great swinging load, the system is more stabilized and can be designed more simply. With *Solarban Twindow* Units, we're dealing with a glass with a U-Factor that's actually the same as the wall."

Put all these environmental control factors, and the visual comfort advantages of a 20% Visible Transmittance rating, to work for your clients. Contact a PPG Architectural Representative for technical assistance, or write: PPG INDUSTRIES, One Gateway Center, Pittsburgh, Pennsylvania 15222.

Architect: Curtis & Davis, New Orleans-New York
Associate Architect and Structural Engineer: Milton B. E. Hill, Gulfport
Mechanical Engineer: Lazenby & Borum, Atlanta

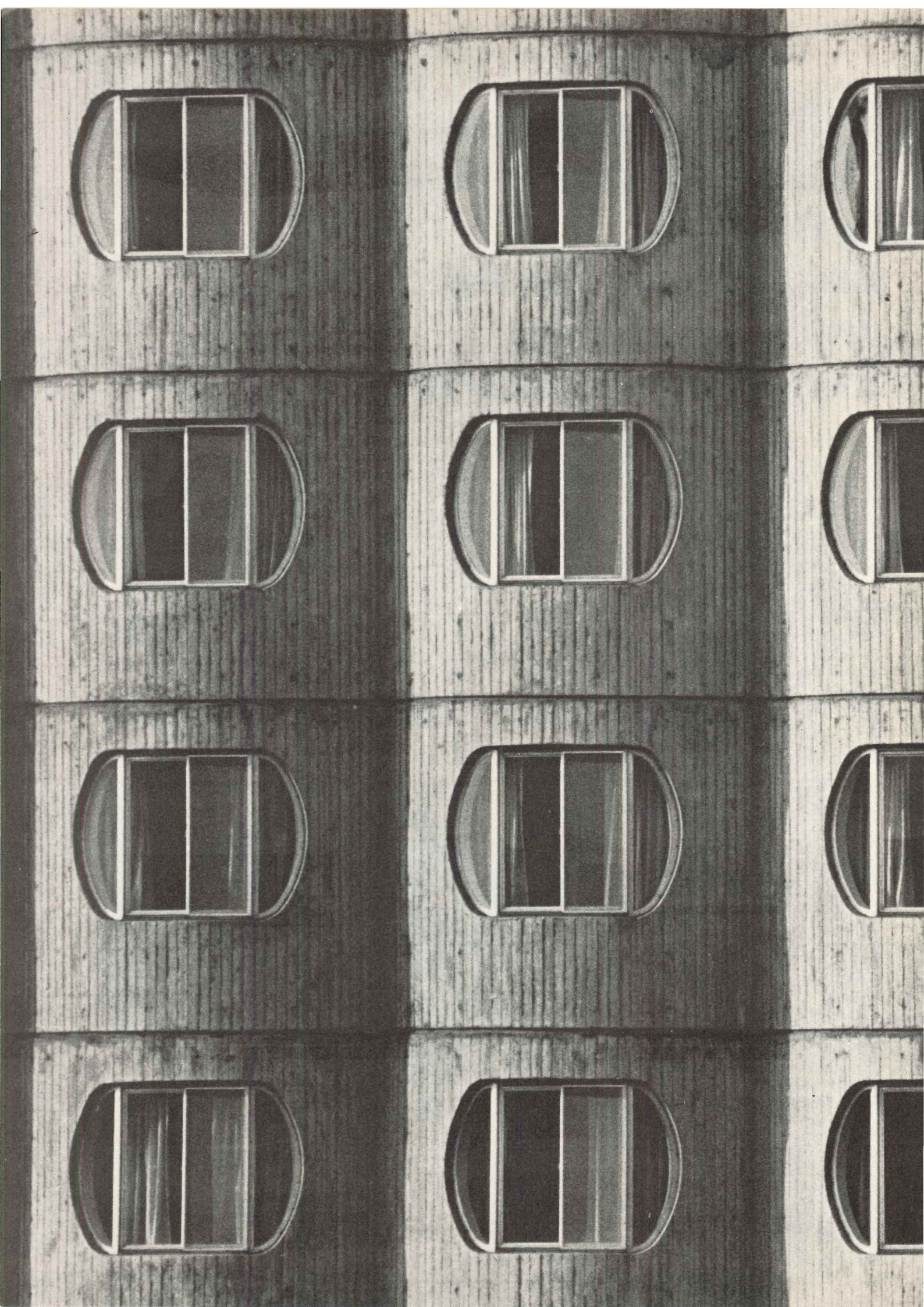
PPG is Chemicals, Minerals, Fiber Glass, Paints and Glass. So far.



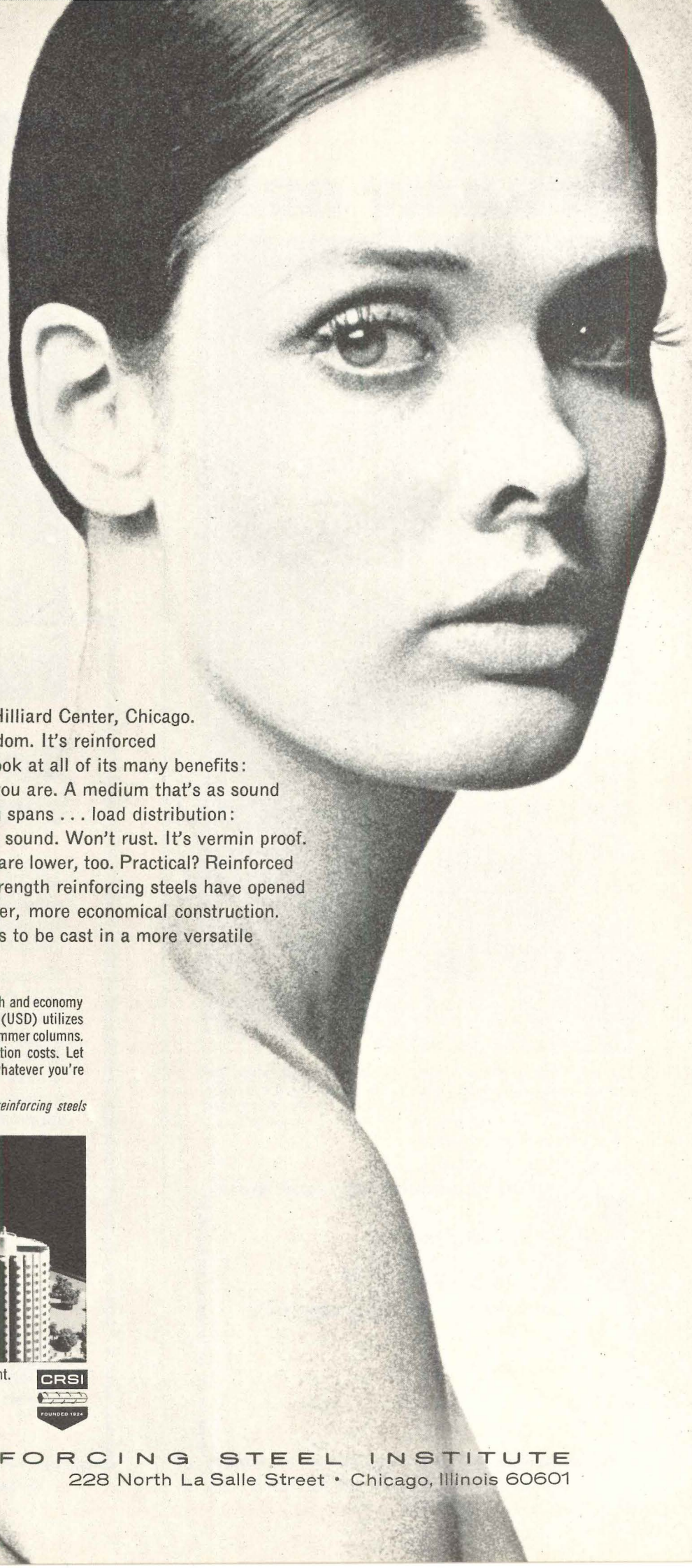
Mississippi Power Company's seven-story concrete and glass general office building in Gulfport withstood Hurricane Camille's 200-mph winds and storm tides with only minor damage to the 24,000 square feet of glass.

PPG INDUSTRIES

On Readers' Service Card, Circle No. 340



he beautiful world of reinforced concrete is practically perfect

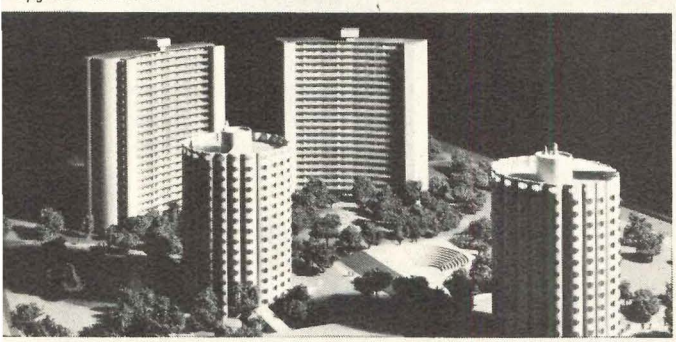


t's a beautiful view in the new Raymond M. Hilliard Center, Chicago. Texture. Shape. And incomparable design freedom. It's reinforced concrete. No other medium offers more. Just look at all of its many benefits: t's available. Everywhere. Ready to go when you are. A medium that's as sound and durable as any you'll ever work with. Long spans . . . load distribution: no problems. And reinforced concrete dampens sound. Won't rust. It's vermin proof. Fire test rating: the best. Your insurance rates are lower, too. Practical? Reinforced concrete is practically perfect. And new high strength reinforcing steels have opened the door to unlimited design possibilities. Faster, more economical construction. f your mind is occupied by a building that asks to be cast in a more versatile medium, move to reinforced concrete.

GRADE 60 USD

Go 60 and Save. Grade 60 Steels*. Here's new strength and economy in a one grade package. Ultimate Strength Design (USD) utilizes fully its 50% greater yield strength. Helps achieve slimmer columns. More usable floor space. Lowers over-all construction costs. Let Grade 60 help you meet the challenge of the 70's whatever you're building. Write for new Grade 60 Steel Brochure.

"Grade 60" the new term that describes ASTM specs for 60,000 psi reinforcing steels s upgraded in 1968.



aymond M. Hilliard Center, Chicago. A public housing development.
eveloper: The Chicago Housing Authority
rchitect & Engineer: Bertrand Goldberg Associates
ontractor: Paschen Contractors, Inc.

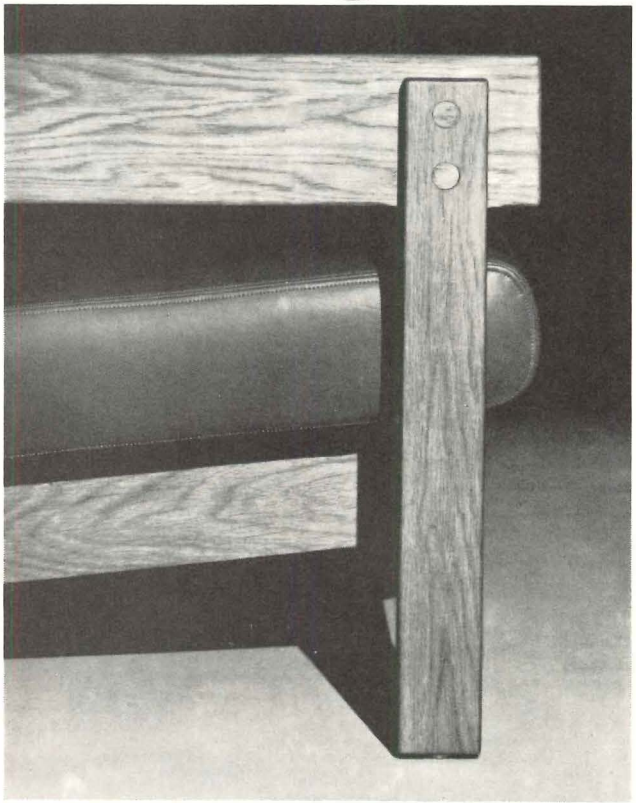
CRSI FOUNDED 1924

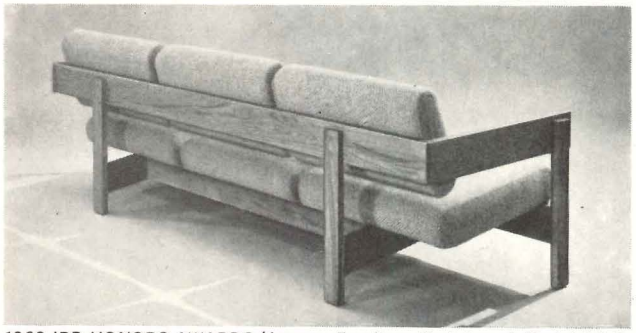
CONCRETE REINFORCING STEEL INSTITUTE

228 North La Salle Street • Chicago, Illinois 60601

-69

bold, brawny oak





1969 IBD HONORS AWARDS / Lounge Furniture First Award: Model OS-3
Design: Stuart John Gilbert IBD / IDSA, Wayne W. Good

The bold look of white Appalachian oak highlights the Oak Lounge Series by Harter. Fresh, informal, rugged. Seating with strength. ☐ Harter Oak includes a chair, 2-seat and 3-seat sofas, and matching tables. Now on display at our showrooms, or write for catalog.

New York / Chicago / Denver / Los Angeles

HARTER CORPORATION
417 Prairie Avenue
Sturgis, Michigan 49091

☐ *Send me the Harter Oak Lounge Series catalog.*

Name _____

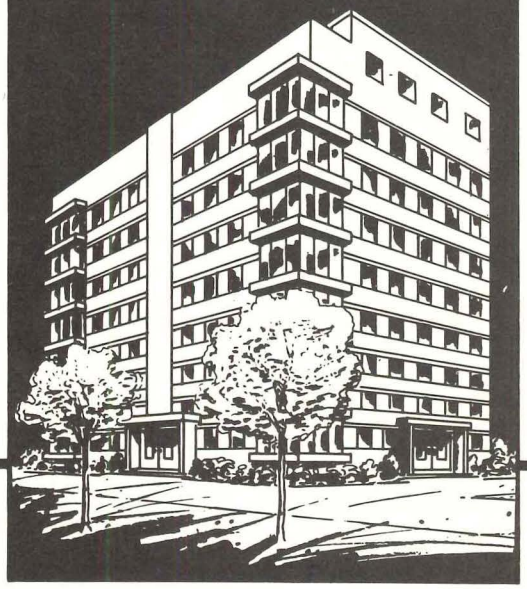
Firm _____

Address _____

City _____ State _____ Zip _____

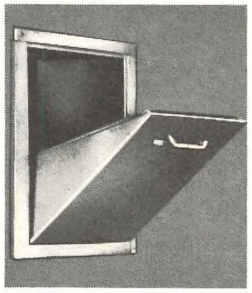
On Readers' Service Card, Circle No. 423

HOW TO OBSOLETE A NEW MULTI-STORY BUILDING *FAST!*



Don't install centralized disposal

A storage room on each floor of the building may hide rubbish, garbage, soiled linen, or paper until removal; but it can't hide tenant discontent, added janitorial costs and inconvenience.



Modern buildings need modern Wilkinson centralized disposal chutes with noiseless self-closing intake doors, electrically controlled sprinkling and flushing, effective disinfecting and sanitizing.

Wilkinson Chutes, prefabricated at the factory for low-cost installation, mean long-lasting economies for building owners by efficient centralized disposal.

See our catalog in Sweet's Architectural File

WILKINSON CHUTES, INC.
619 East Tallmadge Ave. Akron, Ohio 44310
WILKINSON CHUTES (Canada) LTD.
9 Dwight Ave. Toronto 14, Ontario, Canada

On Readers' Service Card, Circle No. 344



We make a lot of different ceilings to do a lot of different things.

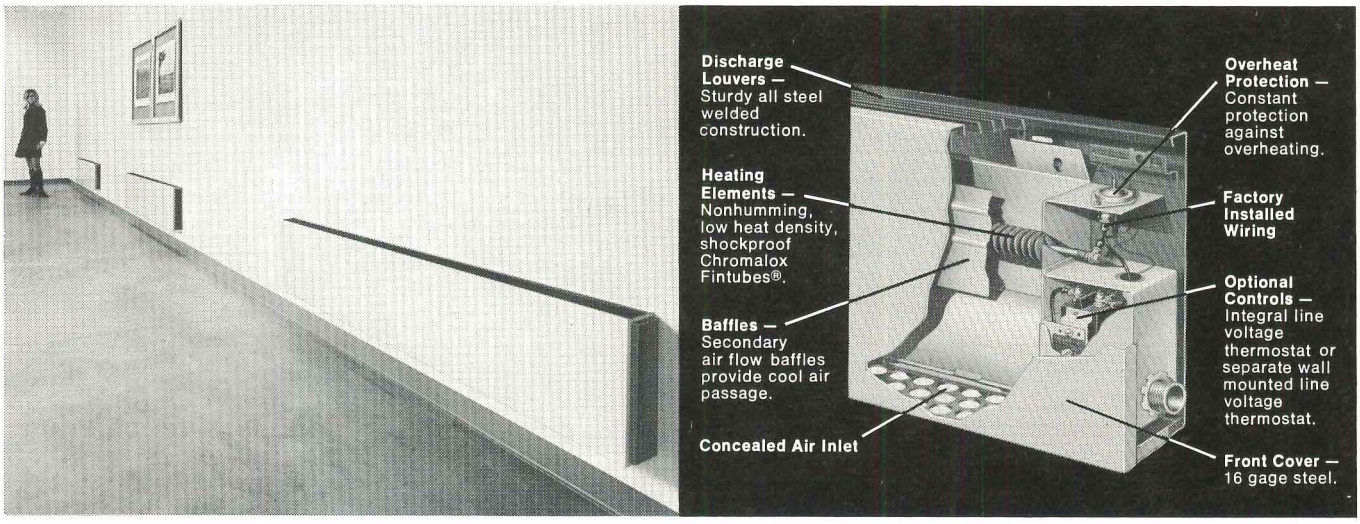
This one's thing is flexibility.

Three air-delivery systems, three air-return systems, and—by interchanging vaulted modules and flat panels—an unlimited number of lighting arrangements. This is the kind of flexibility the Armstrong C-60/30 Luminaire Ceiling System delivers. The kind of flexibility that also gives superior sound control, UL-rated fire protection, sprinkler head and partition adaptability. The kind of flexibility that has led to the development of a complete series of Armstrong Luminaire Ceiling Systems. An Armstrong representative is in the best position to tell you more about Luminaire and the wide range of Armstrong Ceiling Systems. For his name and a copy of our folio, write: Armstrong, 4204 Watson St., Lancaster, Pa. 17604.

Armstrong CEILING SYSTEMS THAT WORK

Or on Readers' Service Card circle No. 300.

Chromalox® puts the odds on your side 1,245 to 1



Select the exact model of Chromalox Architectural Sill Line Electric Heater that best fits your needs. You have 1,245 models with 6 lengths, 44 wattages and 3 voltages to choose from.

Each unit gives you clean, crisp, contemporary styling combined with outstanding performance and low maintenance features. Fits harmoniously with all architectural wall systems and interior surfaces. Optional built-in thermostat and relay controls, all UL listed.

For detailed information call your Chromalox representative or write for 16-page Design Manual F31101.

EMERSON

EDWIN L. WIEGAND DIVISION
EMERSON ELECTRIC CO
7748 THOMAS BLVD PITTSBURGH, PA 15208

WSP-109

YOUR PEOPLE WILL MAKE JUST AS MUCH NOISE BUT THEY'LL HEAR LESS OF IT.

Sound absorbent furniture is here.

Our new TAG furniture is surfaced with Artitex, a nylon finish that swallows up noise. Artitex looks and feels like velvet, wears like iron and comes in 13 glorious colors.

TAG also restores visual privacy to open offices. With Artitex-coated screens that keep out eyes as well as noise.

And TAG is flexible. For instance, you can switch drawers and panels from one desk to another without tools or muscles. Much easier than moving a whole desk.

The TAG (Task Administrative Group) Collection was designed for the noisiest office. That's why it's best in every office. Like all Art Metal furniture, TAG looks beautiful and works beautifully. Write for name of dealer.

ART METAL
JAMESTOWN NY

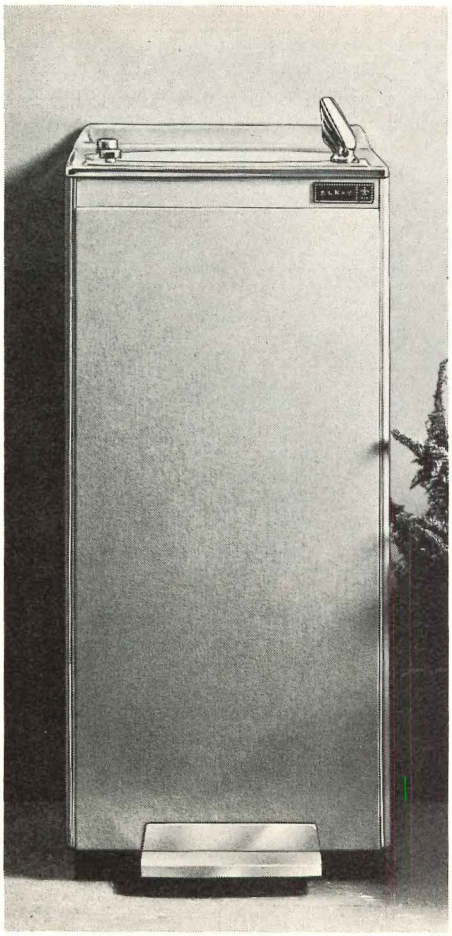
On Readers' Service Card, Circle No. 346



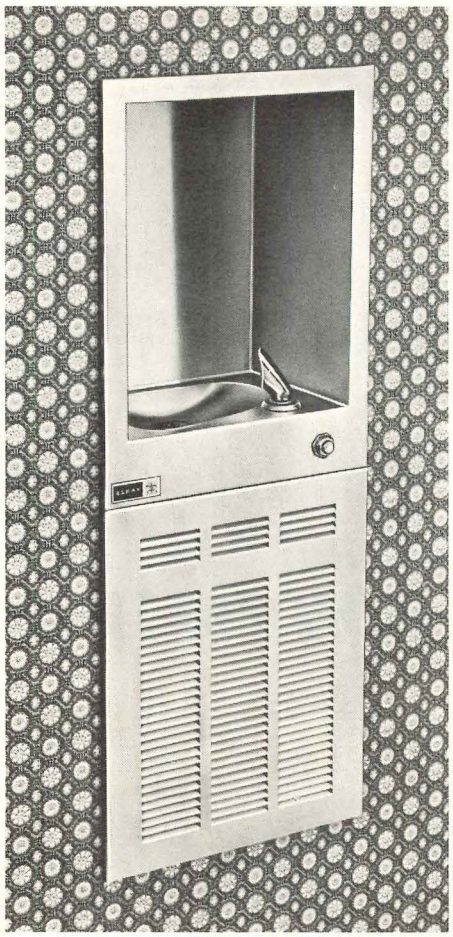
Elkay refrigerated water coolers fit today's creative design ideas for every type of building. Easily replaceable decorative panels of laminated vinyl in nine colors and two in baked enamel are offered at no extra cost and for immediate delivery. A unique cascade design, anti-splash basin with built-in, vandal proof drain teams up with a hooded stream projector and separate control button. The complete water cooler line includes Elkay innovated corner models, floor models and wall models, in regular and compact sizes. Three sizes of fully recessed and two capacities in semi-recessed coolers complete the line. Parts interchangeability and standardization are part of the Elkay concept in improved water coolers.



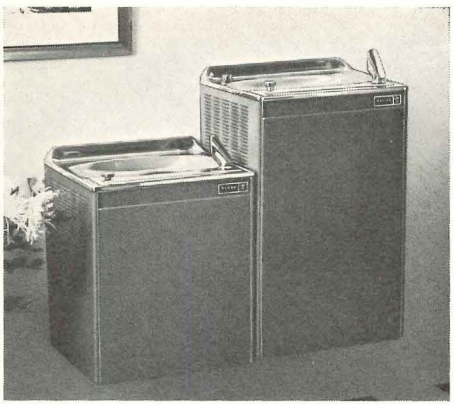
Ingenious corner model permits full utilization of space—eliminates corridor traffic problems. Meets "Hill-Burton" program requirements.



Floor models in 5 capacities. An attached child's size is available for side-by-side installation. Hot and cold water supply optional except on Model EF 4.



3 styles of fully recessed coolers in 8 and 12 gallon capacities created by Elkay comply with "Hill-Burton" program requirements.

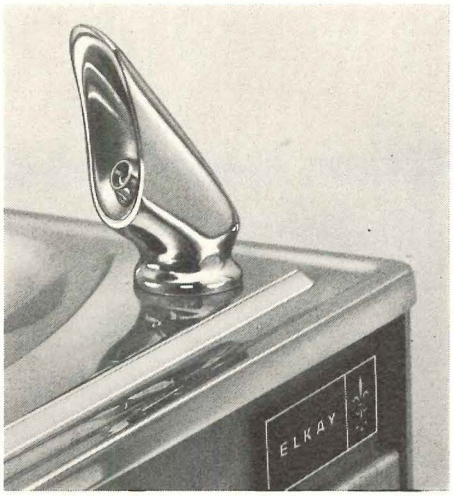


Regular and compact sizes in wall mounted coolers are available. Combination two level cooler. Attached child sizes are also in the complete line of coolers. Hot and cold feature available on all models.



Made in two capacities. Both of the Elkay semi-recessed water coolers take the same rough-in dimensions and incorporate the famous cascade basin.

from the ELKAY® family of firsts



Hooded stream projector — *a mark of Elkay innovation.* When you see this Elkay product you are sure of sanitation and properly designed flow for drinking.

ELKAY 50TH Anniversary

For complete information write for Catalog No. DFC-4 or call Customer Service Dept., Area Code 312-681-1880. ELKAY MANUFACTURING COMPANY, 2700 S. Seventeenth Ave., Broadview, Ill. 60153



Nine times out of ten, MONO fills the sealant gap.

When it can't, he can.



We know you'd like an all-purpose trouble-free construction joint sealant. □ So would we. But right now, MONO's as close as we can come . . . and it won't do everything, any more than any other types and brands we've tested. □ Sure, MONO's good and works so well under the kind of adverse conditions (dust and moisture) that are common to the job site, that we suspect many construction people actually look on it as an all-purpose sealant. □ But actually Tremco's business isn't based on selling *any* all-purpose sealant. Instead we're a single-purpose company. We're The Water Stoppers and we want to give you leakproof security in every joint on the job. □ So we make not one, but fourteen other sealants besides MONO, like a very good polysulfide (Lasto-Meric), a highly-regarded preformed tape (440) as well as a dozen others with special purposes. □ The only all-purpose item in our catalog is the Tremco Representative. He has been thoroughly trained to provide you the proper sealant for each application and is ready to give job-site assistance before, during and after each project. □ Why not give him a call next time you run into the sealant gap? He'll get you across every time. □ The Tremco Manufacturing Company, Cleveland, Ohio 44104; Toronto 17, Ont.

TREMCO
The water stoppers

The next four pages contain ideas which could change the design approach to entrances and windows for many years to come.

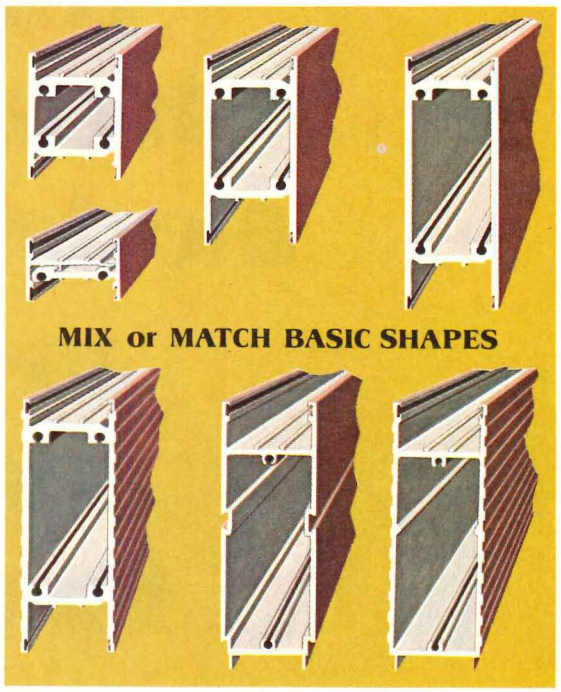
Kawneer introduces a new system of aluminum entrance coordinates ...Entara



Now you can design entrance areas as individual and memorable as your buildings.

For the first time you aren't confined to stereotyped entrance styles.

Entara is a system of aluminum extrusions, sub-assemblies, parts, pieces and hardware. Variants in stiles, rails, plankings, glazing options. Related in appearance and in function to achieve a wide selection of interchangeable design elements for an almost limitless variety of entrance configurations.

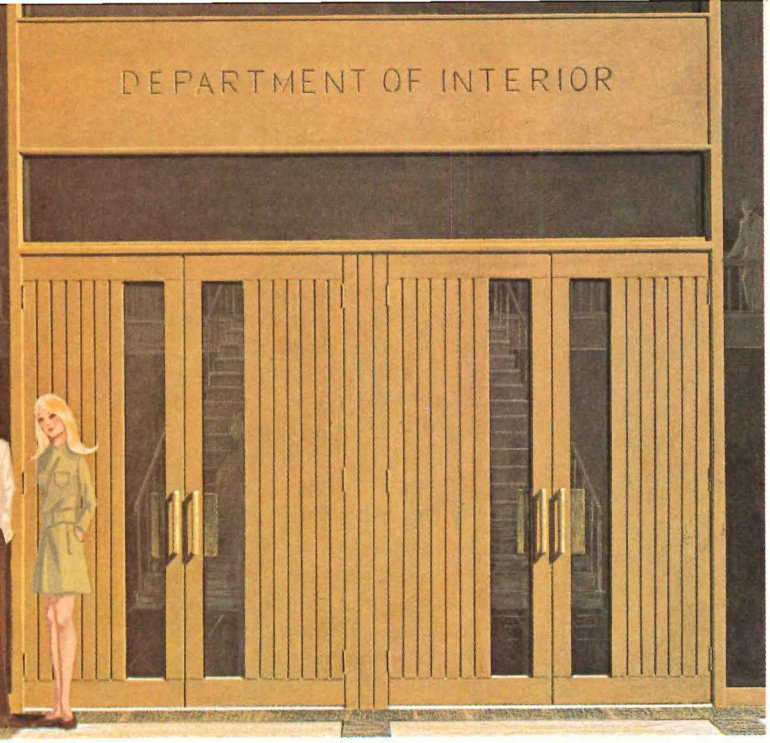


To put it another way . . . Entara is a system of entrance coordinates. Door coordinates—Frame coordinates —Hardware coordinates. New form, dimension, plane, texture, color. New push-pull hardware, created as part of the system, can be varied to meet your design individuality.

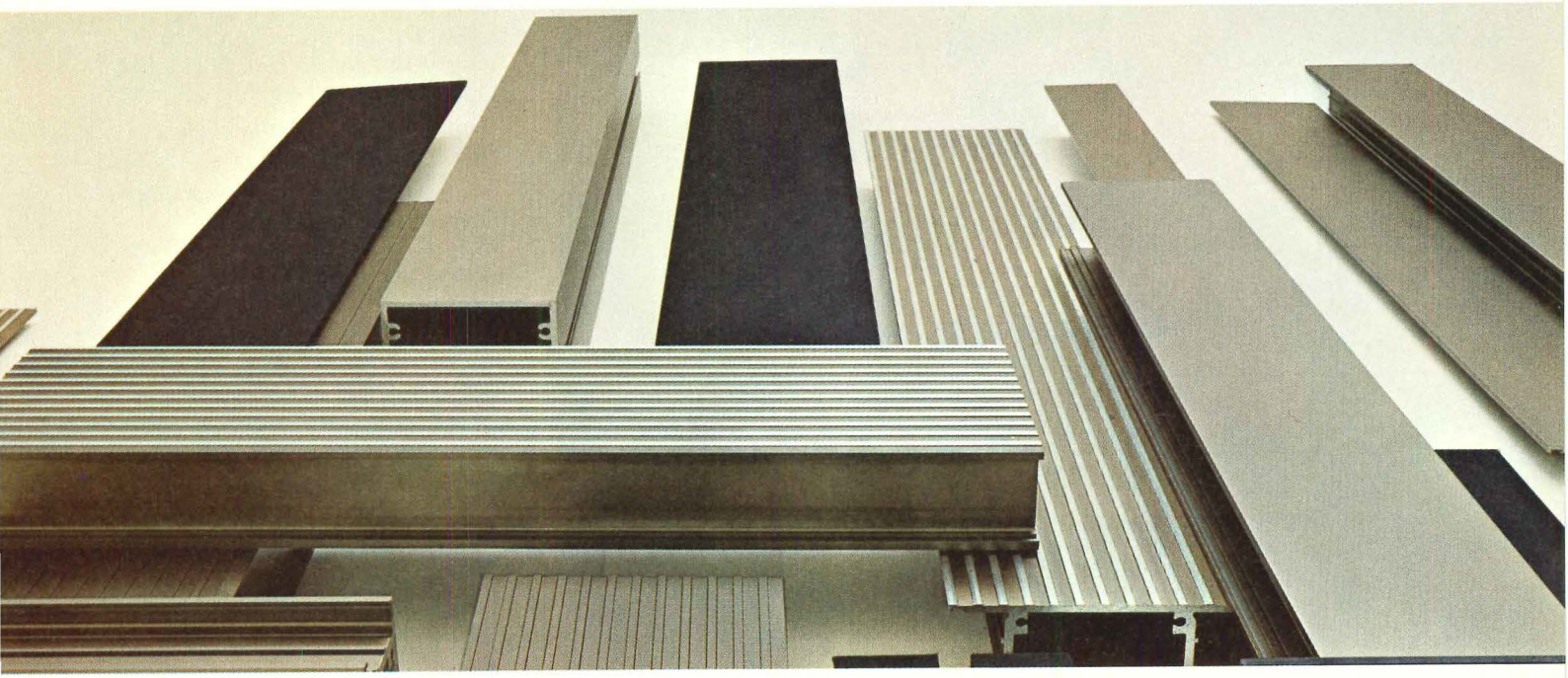
The multiple components of the Kawneer/Entara system give you optimum design freedom. For full information, see your Kawneer representative or contact Kawneer Product Information, 1105 N. Front St., Niles, Michigan 49120.

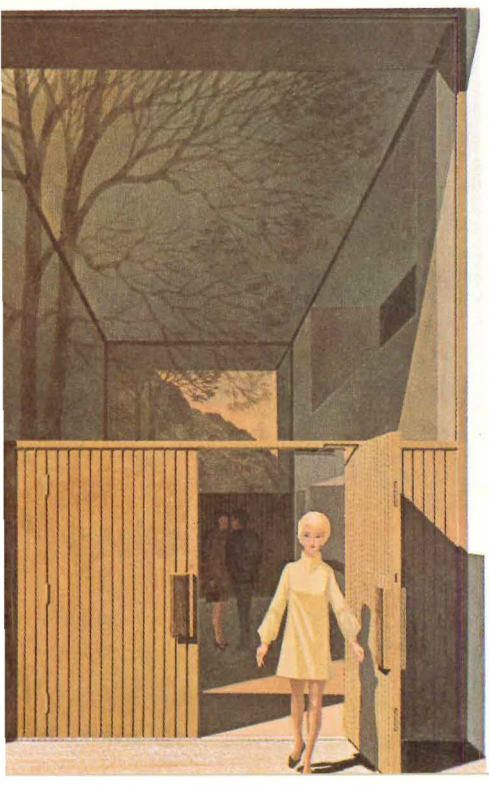
Entara is a trademark of Kawneer/AMAX.

On Readers' Service Card, Circle No. 366


DEPARTMENT OF INTERIOR

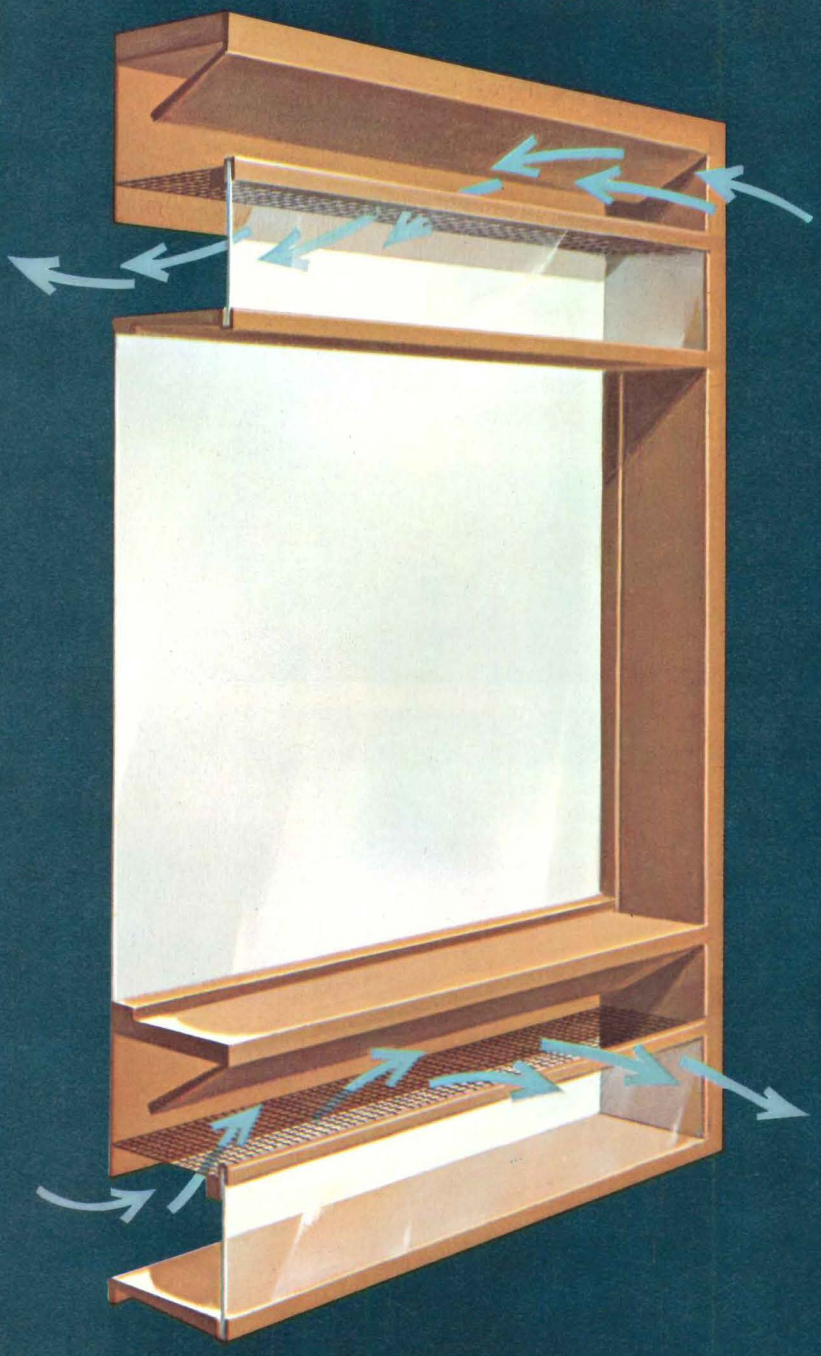








Kawneer has just re-invented the window ...Ventrow



From the exterior, open or closed, Kawneer Ventrow appearance doesn't change. No operating hardware. No protrusions. Invisible, hidden screen. It's burglarproof, fall-out-of-proof and throw-things-out-of-proof to maintain a building's security . . . eliminate all worry about leaving windows unlocked or open.

Kawneer Ventrow is the aluminum window that delivers fixed window performance, yet ventilates in a unique way. It is designed to be left open, even during driving winds, rain or snow. Without leaking. Without gusts. Without drafts. Air movement, using natural air circulation principles, is always controlled and even. An easy pull shuts vent tight. In fact, the harder the wind blows, the tighter the seal.

Natural selective ventilation is always possible!

Get full details on the Permanodic® maintenance-free aluminum window you have to see to believe —Kawneer Ventrow. Write Kawneer Product Information, 1105 N. Front St., Niles, Michigan 49120.



Warren Packaging, Ltd.
Scarborough, Ontario

Architect: Brian T. E. Atkins M.R.A.I.C.
Toronto, Ontario

General Contractor: Kannakko Construction, Ltd.
Scarborough, Ontario

THE KAWNEER CONCEPT:
Attention to detail

KAWNEER
ARCHITECTURAL PRODUCTS
AMAX
ALUMINUM

Kawneer Company, Inc., a Subsidiary of American Metal Climax, Inc.
Niles, Michigan • Richmond, California • Atlanta, Georgia • Bloomsburg, Penn. • Harrisonburg, Va. • Kawneer Company Canada, Ltd., Toronto

VENTROW IS A TRADEMARK OF KAWNEER/AMAX. PATENT APPLIED FOR.

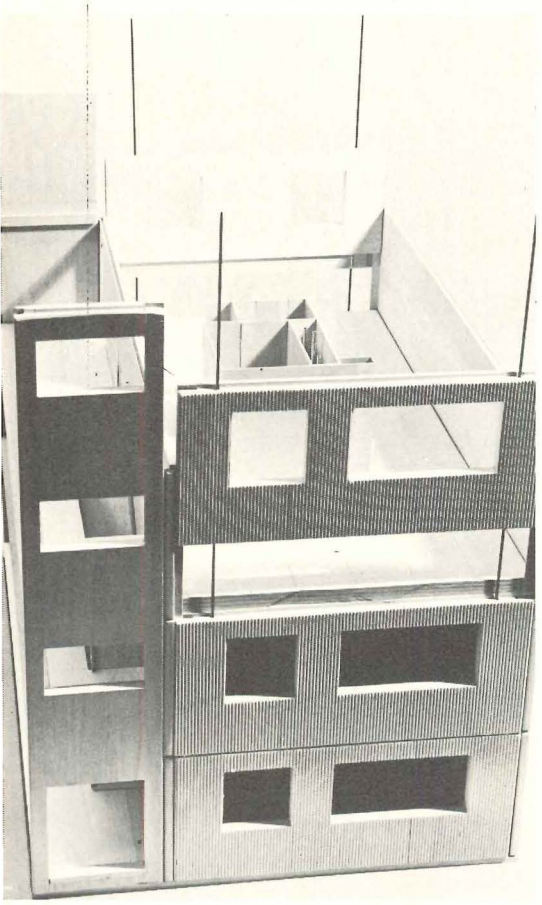
On Readers' Service Card, Circle No. 371



New York Discovers Infill

The New York Urban Coalition

A lawyer-renewalist, Justus Taylor, and an architect-planner, Alexander Garvin, were asked by the New York Urban Coalition, a privately funded, ghetto-action organization, to propose a systems housing approach to slum problems. What they have recommended to the Coalition is "infill," a type of housing already becoming widespread in the Boston area, but so far, little known in New York. The clearance-demolition-relocation approach basic to New York's monolithic housing projects would be obviated by infill: relying on standardized production techniques for modular housing, infill housing can be built in small scattered sites that are either vacant or contain abandoned buildings.



Model of infill housing proposed by Stull Associates for Central Brooklyn Model Cities.

Financial advantages of infill, Mr. Garvin states, are particularly appealing: since the land is non-income producing, acquisition costs would be kept down. Also infill can use existing infrastructure (streets, sewers, gas, electricity, telephone, sidewalks). Another cost saving is the shortened construction time that affects interim financing with its heavy interest rates.

To carry out this infill project, the New York Urban Coalition plans to create a redevelopment corporation to first locate a potential sites area and consult with the community. (There is speculation that the Coalition is in the process of selecting a prefabricated system now.) As Mr. Garvin explains, however, "the entire program may yet falter over the lack of available government financing (Mitchell-Lama, 236, etc.), or because of community politics. But whatever results, it appears that a scattered site infill housing program can provide a new approach for attacking the problems of slum housing."

Central Brooklyn Model Cities

Meanwhile, Central Brooklyn's Model Cities program has been analyzing an infill proposal from Boston architects, Stull Associates. Their proposal is unique in that it calls for land ownership by members of the community. Central Brooklyn Model Cities would create a Community Development Company (representing neighborhoods, churches, private investors). They would acquire sites for development and construction, (with Mitchell-Lama financing) then turn over ownership of neighborhood development packages to individual neighborhood organizations.

The proposal calls for the Development Corporation of America performing all development functions including design, finance, government agency processing, construction, marketing, and managing. In turn, DCA would create and operate a limited profit housing company to be mortgagor for each neighborhood development package. Land would be leased by the Community Development Company to the Limited Profit Housing Company for the development of housing on leasehold property. Rents to the CDC would be equal to the profits permitted by the program. The financial advantages to the housing company would be based on personal tax benefits from operation losses resulting from depreciation and amortization of leasehold improvements.

The CDC would have to approve design, construction, management, tenant selection, marketing (tenants would not necessarily have to be share owners in CDC). Although it is not expected that many members of the community can afford to buy shares in the land, financing could either come from the government or banks: the loan would be secured by ground rent from leasehold improvements as well as by the publicly-backed, long-term housing mortgage. Government subsidies would also be needed to keep rents below those possible with Mitchell-Lama.

The infill program proposes to develop 5500 units in 20 groupings through Central Brooklyn. Each group incorporates 250 residential units and a community facility center in a neighborhood. Four-story apartment buildings would usually contain four apartments. A precast panel and plank system is employed in which front and rear elevation panels (with integral doorways and windows) act as loadbearing walls for the longitudinal planks. Panels come in 20 ft or 40 ft widths depending on apartment plan. Walls are joined by clipping devices and units are post-tensioned to stabilize structure. The bath-kitchen-utility core is completely fabricated.

The structural system is felt to be simple enough to employ unskilled labor. The CDC also plans to build and own the factory that will produce the components, as the architects suggest in their extensive program.

Soleri's Cities on Display

A spectacular architectural exhibit has been breaking attendance records recently at the Corcoran Gallery in Washington, D. C. The traveling exhibition, partially HUD financed, shows Paolo Soleri's work of the last 20 years, notably his mono-structure cities. A strong believer in the need for cities to be compact single entities to conserve nature and stop wasteful urban sprawl, Soleri has been developing a science of the city "Arcology," or ecological architecture. His theories are discussed and illustrated at length in *Arcology: The City in the Image of Man,* published recently by MIT press.

In Soleri's cities, the structural system dictates the form and also provides an open matrix for plug-in component living and working units. These units can be flexibly adjusted or moved. Ventilation and light are accomplished through a system of air snorkels, light tunnels, and overhead louvers solved, as are other problems, with the aid of the computer. Elements serve more than one function, e.g., structural members may contain industrial complexes while also carrying parkland. The mile-high cities would not have cars — people would travel by elevators, bridges, stairs. Power for the city would come from nuclear reactors within the massive foundation, where heavy industries are also located. Generally, living accommodations would line the outside surface of the cities, with commercial, educational, and cultural facilities situated near the center.

These concepts are dramatically illustrated with 25 models. One, "Arcosanti II," is a stunningly executed translucent plastic model about 8 ft high, 11 ft wide, and 25 ft long around which an elevated ramp has been built for viewing purposes. The translucent model is artificially lit to demonstrate the way natural light would suffuse the city. Another model represents a large cardboard three-dimensional section of a city called "3-d Jersey." This city was inspired by a proposal that Soleri plan metropolitan New York's fourth jetport (on a site in the New Jersey flats). Instead of an airport, he suggested a city encircled with runways. Inside the city are hanging sunlit gardens, terminals, offices, hotels, theaters and dwelling units for one million inhabitants. Other models in the show also include his earlier bridge projects — one of which is 40 ft long.

The exhibit includes sketch books and scroll drawings some of which measure 160 ft in length, slides and narrations explaining Soleri's proposals, as well as a three-dimensional catalog. The show costs $100,000, a budget made possible by Prudential Insurance Co. and a HUD grant.

A testing lab for these ideas has been functioning in Scottsdale, Arizona since 1955, which includes some small prototype construction. At the moment, Soleri and his apprentices are preparing for the construction of Arcosanti City project — Soleri's first realized city. Here, 1500 educators, politicians, urban planners, architects, artists, and businessmen will live, study, and evolve new sociopolitical mechanisms needed for the city of the future.

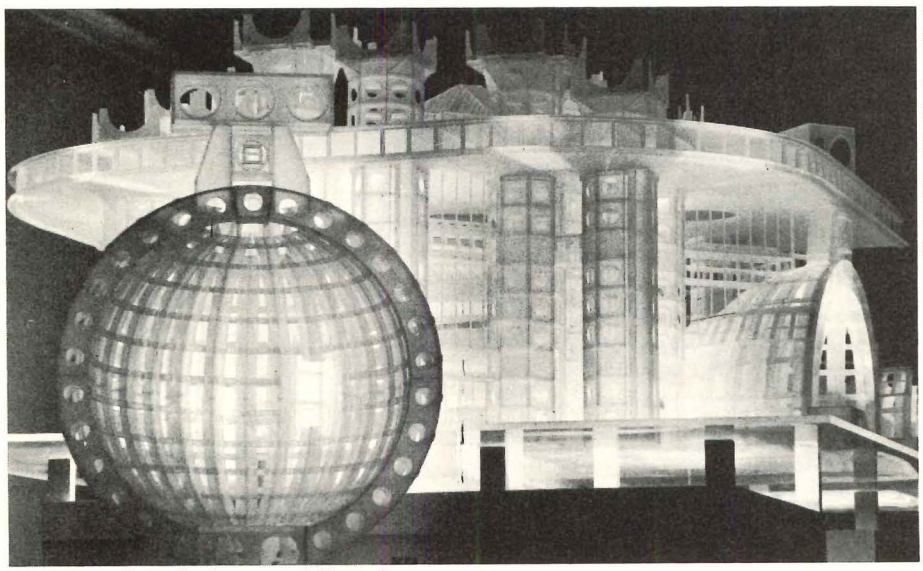
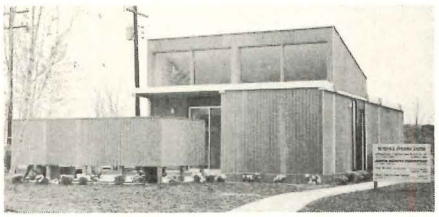


Photo: The Washington Post

Model for Soleri's Arcosanti II project.



Stacked concrete bags form walls of house.



Plywood sheaths concrete column and slab structure.

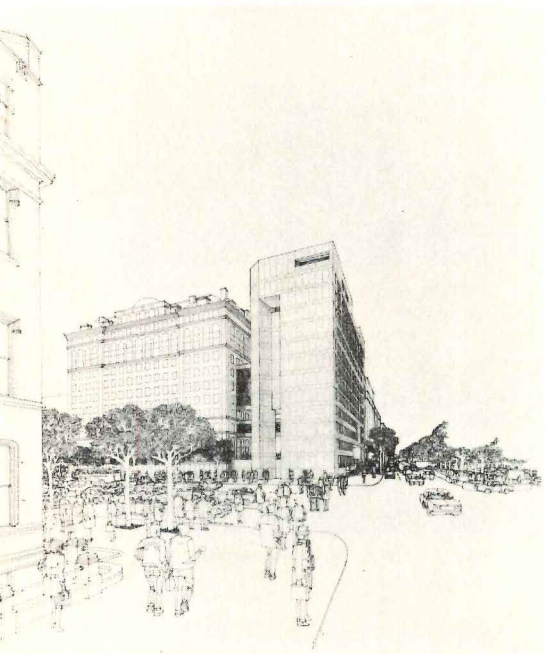


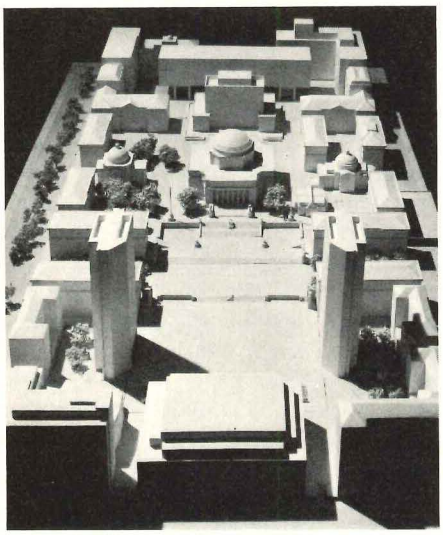
Factory-produced house is made with aluminum siding.

Low-cost Housing Tests Consumer Preferences

Operation Breakthrough may be testing "market acceptability" with its prototype housing (p. 120, "Operation Breakthrough") but the University of Texas has gone a step further, on a smaller scale. With Breakthrough, the market is tested by its attractiveness to developers, housing authorities, etc. The Texas program, however, has set up a center to test potential *occupants* of low-cost housing for *their* preferences.

On a grant from the Department of Housing and Urban Development, the University constructed and sold ten low-cost houses, "Austin Oaks," as part of an experimental project last fall. Nearby, an evaluation center was constructed with models, slides, plans, and simulated interiors of the houses to rate low and moderate income consumer preferences. (Results should be fully compiled in several months.) Eighty-eight builders across the country were solicited for house designs, from which the Federal Housing Administration selected the ten for the experiment. A variety of construction techniques, materials, and styles were used ranging from conventional frame construction to precast concrete, concrete block, semimobile types, and panelized construction. Costs of units range from $4975 to $7000. Besides testing consumer preferences, the University of Texas has been observing construction techniques and recording and analyzing costs.





I.M. Pei's model for Columbia University showing South Campus.

Warner Burns Toan & Lunde's Life Sciences Building, North Campus.

Columbia Goes Under

Columbia University's controversial gymnasium is going underground as part of a master plan for a 50 percent increase in on-campus construction. The gym, adjoined by a subterranean student center, will lie between Butler and Low Libraries under Columbia's South Field. I.M. Pei, the architect commissioned by the university to do the study, has also recommended a pair of 20-story towers flanking Butler Library, a life science building to rise above the North Campus, and an underground addition to the School of Architecture. "We have exploited underground construction to the maximum," Mr. Pei said. "It has the advantage of no housing relocation and it gives us the chance to tie the whole university together."

Reaction to the plan among students and community members has been mixed, despite the victory it represents for those whose 1968 protests halted the proposed construction of the gym in Morningside Park. Students generally acknowledge the need for some expansion, but complain that the only open area on campus will be destroyed. According to the Columbia Spectator, the twin towers looming over the South Field, an informal meeting place and recreation area, promise permanent morning and afternoon shadows, and further diminish the already limited space.

Dr. Richard Kunnes of Ecology Action objects to Columbia's "unilateral decision-making process" on what he calls the "Masters' Plan." Kunnes claims that Columbia has repeatedly failed to make "provisions for viable community participation" in the planning process.

Interiors for the Poor

Architects aren't the only socially conscious designers devoting more effort to public housing. Now an interior designer, Mrs. Erma Striner, has turned her attention to the *insides* of those housing projects. Realizing the need for flexible modular design in interiors which too often lack space, and for low-cost, well-designed furniture not provided on the market, Mrs. Striner obtained a grant from the National Endowment for the Arts. Over the next year she will be studying housing project floor plans for application of such principles as use of translucent wall panels to cut down claustrophobic spaces, movable partitions, storage walls with pull-out units, and overhead downlighting to save on lamps. Also under study is modular furniture that can be made in prison workshops.

Personalities

Lewis Mumford, will receive the Gold Medal award of the National Institute of Arts and Letters for 1970. . . . **Kevin Roche** has been elected to membership in the National Institute of Arts and Letters. . . . San Francisco designer of "Supergraphics" **Barbara Stauffacher Solomon** has been named recipient of the National AIA Industrial Arts Medal. . . . The Royal Gold Medal for Architecture is to be given this year to the distinguished Scottish architect and town planner, Professor Sir **Robert Matthew,** CBE PPRIBA MTPI ARSA FRIAS.

The Chicken in the Plastic Booth*

In the aftermath of the trials of the Chicago Seven, and the Panther 13, a new courtroom study involving architects is being undertaken. Conducted by a committee of seven members of the AIA and seven members of the American Bar Association, the study will examine the possibility of installing soundproof plastic shields in the courtroom to keep noisy, insolent defendants from interfering with the wheels of justice. So far, the Committee on Design of Courtrooms and Courtroom Facilities has come up with two possibilities. One would be a soundproof plastic bubble that would be equipped with one way sound transmission *into* the bubble, so that the defendant could hear what was going on and talk to his lawyer by telephone. The other method would be a separate room installed in the courtroom with a plastic curtain; sound would be transmitted as in the first plan. While these methods might have more appeal than a restraining order (where the defendant is bound and gagged), recent contempt convictions show it leaves two parties unleashed in the process. Similar solutions would have to be designed for defense lawyers, the responsive audience — and, apparently, the judge. Of more merit are other studies being conducted by the bar on assessing courtroom strategies with regard to defendants' rights, and determining whether previous disturbances form a pattern or are isolated incidents.

**Recently a group of artists (Guerilla Art Action) presented the N.Y. AIA with a chicken in a plastic box to protest AIA involvement in the study.*

Bring Out the Best in Wood

SHINGLES SIDING CLAPBOARDS PANELING DECKING

with Cabot's STAINS



Home in the High Sierras of California; Architect: Charles O. Matcham, Jr., Tahoe City, Cal.; Cabot's Stains specified for Redwood.

Cabot's Stains, in 87 unique colors, protect the wood, enhance the grain, grow old gracefully, never crack, peel, or blister.

Here is wood at its wonderful best. The architect, in specifying a finish for this home, sought beauty and more . . . a finish that would stand up to summer sun and winter cold, that would require minimum maintenance while protecting the wood for a long, trouble-free life. His choice: Cabot's Stains. Cabot's Stains are applicable to all types of wood and all wood surfaces, interior or exterior.

For those who are building now or planning to build or remodel soon, the hour for decision is at hand. Will it be stain or paint for your home? Think it over carefully, for stains have the advantage over paints in terms of natural beauty, economy, longer life, ease of application and trouble-free maintenance. Today, the trend is toward stains . . .

"Cabot's Stains, the Original Stains and Standard for the Nation since 1877."



Samuel Cabot Inc.

428 S. Terminal Trust Bldg., Boston, Mass. 02210

Please send color card on: ☐ Cabot's Stains, ☐ Cabot's Stain Wax, ☐ Cabot's Decking Stains.

_____

_____

_____

On Readers' Service Card, Circle No. 325


Light is the artistry.
Light is the stage.
Light is a
premiere invitation
every night.
W.C. FIELDS
"HURRY IN HURRY"
5



There's drama and delight.
The scene can project glamor
and be bright.
You're in our kind of light.

Here are some of the ways we create it, with light fixtures that fit the script. You see our traditonally styled 1300A series. You see compatible post top lights.

May we show you our whole repertoire that includes light fixtures by the hundreds? Spots for a star. Floods for a facade. Cordial light that invites people in, whether to a show or for friendly service.

Just circle the reader service card. Call us. Or call your nearby Crouse-Hinds lighting sales agent. He's ready to do the analyzing, costing and comparing, with an assist from our home office computer.

Circle 430 on Readers' Service Card

We bid you good light

Crouse-Hinds Company,
Outdoor Lighting Dept.,
Syracuse, N. Y. 13201.

CROUSE-HINDS

CROUSE-HINDS

Tomorrow's Leisure Problems Anticipated by Student Designers

Economists and sociologists have been predicting for several years that the greatest problem of the future will be dealing with leisure time. (This of course comes after the complete takeover by the computer and the adoption of the guaranteed income for the unemployed. [P/A, Dec. 1966]). Not only will the problem be what to do with leisure time, but where to spend it — considering population growth and the concomitant decrease in recreational land areas. A group of students participating in Armco Steel Co.'s fifth student design program, "Concepts for Tomorrow's Leisure," have addressed themselves to these problems. The results are imaginative, futuristic, and even somewhat realistic.

Four schools are invited each year to participate noncompetitively. Armco finances student-built models and organizes the post-design critique session held between students and a panel of executives, designers, and engineers from interested firms and organizations.

Participants in this year's program were: Illinois Institute of Technology, Chicago; California State College at Long Beach; Parsons School of Design, and Pratt Institute, N. Y.

The most ambitious projects came from students at California State College at Long Beach, where entire recreational and leisure systems for the future were designed with reference to ecological problems, population distribution, and educational concepts.

Submarine Communities

A design by R. Brooks, M. Duterte, and H. Goldson for a community *under* a series of connected artificial lakes brings leisure living to the Mojave Desert. The plan calls for a series of wedge-shaped modular housing units to fit into circular "bowl" structures holding seven feet of water. The water would function as a center of recreation, a means of transportation, and an insulating medium, protecting the dwellings from the sun's heat by day and radiating retained heat at night.

Individual dwellings are built to follow the contour of the basin, with entry from the rim of the bowl and natural light passing through the water and translucent ceilings. Twelve of the prestressed, precast concrete dwellings would occupy one basin unit, 224 ft in diameter and holding one surface acre of water.

Fly-In Plug-On Entertainment Centers

A proposal for portable service modules atop high-rise apartments could provide immediate access to leisure and recreation activities within anticipated power and pollution restrictions.

The system, designed by W. Biffar, J. Guenther, and E. Wolsleger, consists of light-weight frame constructions with inflatable, double-walled fabric domes. These would be transported by air from a central support depot to buildings constructed with an integral platform designed to accept the modules. Within each structure, interiors are modified to accommodate activities, such as an auditorium, a gymnasium, or a restaurant.

Free-form Education Goes Underground

An Interest Stimulation Center was designed as part of a changing educational system, where a child could develop his own goals instead of working through imposed curricula. The structure consists of a low concrete shell, covered on the exterior by soil and vegetation. Designed by R. Clements, J. Dykstra, D. Nielson, and G. Takeshita, the shell contains an open space for sensory stimuli, information displays, and areas for creative activities. Darkened fiberglass tactile tunnels lined with varying textures open into audio-visual enclosures, where the child is confronted with real and abstract images, and patterns of light and sound. Sunken information areas, which connect to a computer bank servicing a string of Centers, answer questions on anything the child has made, heard, or seen. Each Center covers about 9000 sq ft, and costs $300,000 fully equipped.

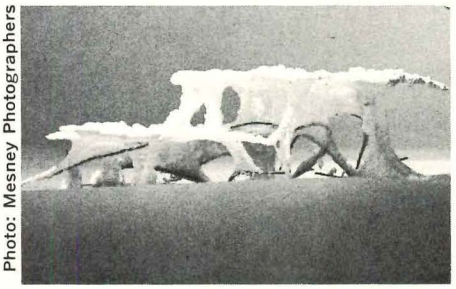


Photo: Mesney Photographers

Water used to mold plastic undersea house by James Ossi.

Refuse Creates Retreat

An artificial island, built with urban refuse as the basic material, would provide space for a contemplative retreat and research environment. Use of the housing, restaurants, research facilities, parks, and information displays planned for the island should be limited to 1600 persons at a time, according to Cal State designers C. Haviland, R. Prchal, and D. Schwartz. Foundation for the island is formed by a rock and sand atoll laid within a perimeter of concrete pilings. Octahedron-shaped block modules of compressed refuse sealed with high-density polyethylene would then be dropped into the interior of the atoll and covered with 20 ft of dredged fill.

Plastic House for Underwater Construction

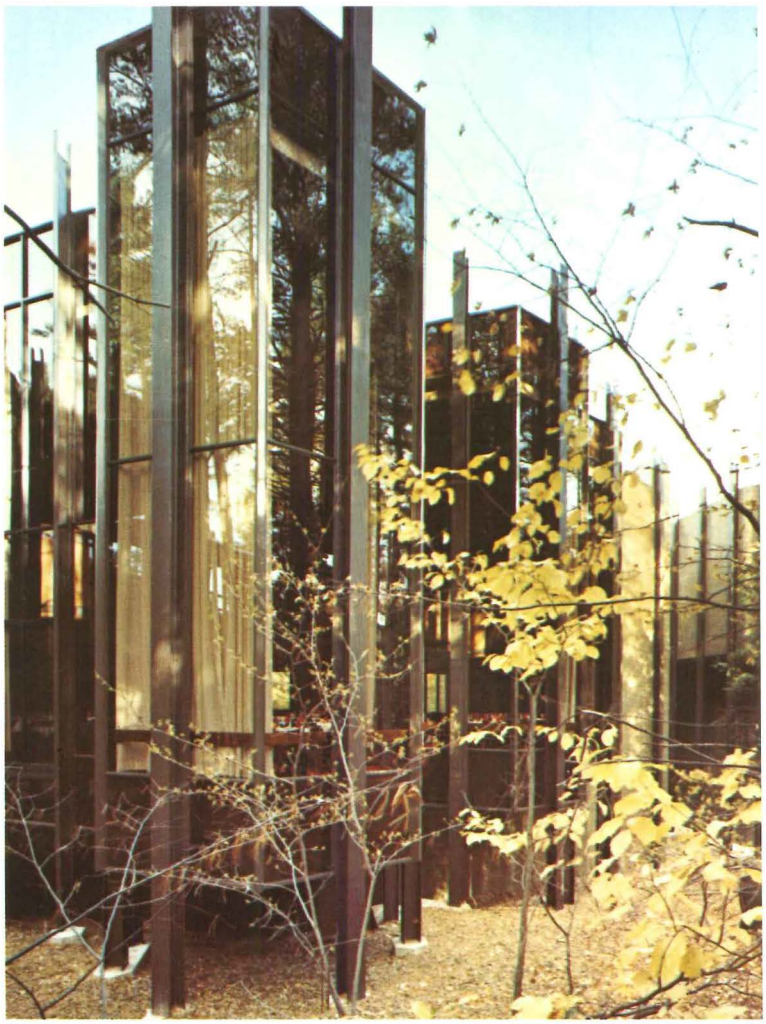
A Parsons School project by James Ossi creates undersea volumes for living formed by water-molded plastics. Models were made by pouring a mixture of clear polyester casting resins and hardeners onto a small area of water surface. As the mixture begins to gel, steel weights of various configurations are dropped through the plastic film, pulling the hardening through the water to make the final form.



The New England Center for Continuing Education

Durham, New Hampshire

Designed by William L. Pereira Associates
Planning · Architecture · Engineering





BETHLEHEM STEEL

The New England Center for Continuing Education

is designed for continuing study by resident adults within a university environment. It is sponsored and supported by all six New England state universities.

The first phase of construction, completed in fall, 1969, represents an investment of $3.7 million, provided by private, Federal, state, and local contributions, and substantial grants from the Kellogg Foundation.

The Center is located on 8½ wooded acres adjoining the University of New Hampshire campus. The primary structures now in service include a residential tower accommodating some 82 guests, and the Learning Center, which houses seminar rooms, an auditorium, audio-visual facilities, and dining areas. Future construction will provide two more residential towers, additions to the Learning Center, and a magnificent pavilion for social activities.

BETHLEHEM STEEL



Viewed from the University of New Hampshire campus, the 8-story residential tower is a dramatic architectural statement . . .



. . . but, within the Center, the building blends into the trees, its reflective surfaces and dark-painted steel columns echoing the rhythms of nature.

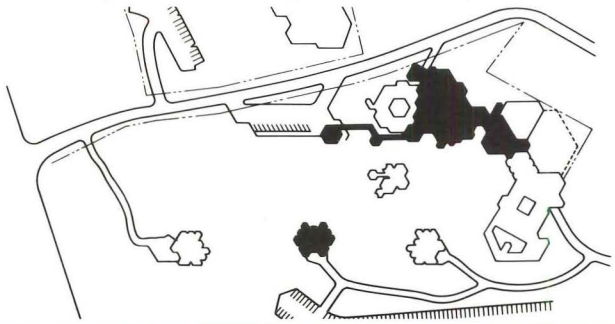
Discussion nooks are provided on every residential floor n the tower.





The dining area in the Learning Center is "papered with the view."

Plot plan) Completed structures are shown in solid color. Others are planned for later phases of development.





A spacious gallery within the Learning Center can accommodate large groups of conferees, while niches and alcoves overlooking the dining area encourage more intimate conversations. There is direct flow between the gallery and seminar rooms of various sizes at left.



A steel bridge provides access to the Learning Center from the arrival area.



Visual delights abound throughout the Center. Above, a promenade at the entrance level of the residential tower; right, a stairway in the Learning Center.



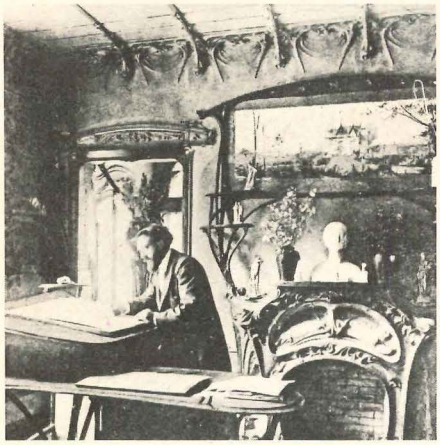
The New England Center

is completely steel-framed, with painted exterior columns setting off exterior surfaces of glazed brick and dark, reflective glass.

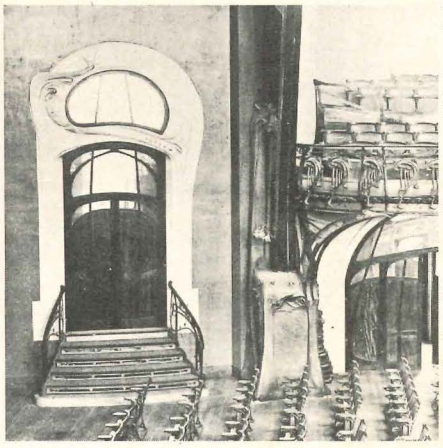
If you would like to have a more detailed description of the structural design, please ask for "Structural Design News—1969," Booklet 2594. It is available from the nearest Bethlehem sales office or by writing Manager of Advertising, Bethlehem Steel Corporation, Bethlehem, PA 18016.

BETHLEHEM STEEL

Architect: William L. Pereira Associates; structural engineers: LeMessurier Associates, Inc.; mechanical/electrical engineers: Rollins King and McKone; civil engineer: Grant Davis; first phase general contractor: Davison Construction Co., Inc.; first phase steel fabricator and erector: Augusta Iron Works.



Interior of Guimard's office (1897-99).



Humbert de Romans Concert Hall, 1901.

Photos: Courtesy Museum of Modern Art



Coilliot House, Lille France (1898-1900).

Guimard Exhibition Opens in New York

The superficialities of the *Art Nouveau* style have certainly been overworked in recent years, but rarely has attention turned to those men who understood the philosophy of *Art Nouveau* as a structural and stylistic approach to *all* aspects of design. Hector Guimard, best known for his Metro signs, was such a designer, as an exhibition at the Museum of Modern Art until May 10 illustrates. The show has brought to view much of Guimard's little known architectural work and other *oeuvres* ranging from wallpaper and embroidery design to jewelry, doorknobs, and graphics. As director of the exhibition and Associate Curator of the Department of Architecture and Design, Lanier Graham points out, "these are components of a single aesthetic. The desire for a *Gesamtkunst* — a total work of art — was widespread throughout *Art Nouveau.*"

The exhibit includes an impressive collection of Guimard's drawings of furniture and architecture from the archives of the Association for the Study and Preservation of Architecture and Decorative Arts of the 20th Century at Garches, France, as well as a number of remarkable pieces of furniture from private collections in Paris. It is to the credit of Mr. Graham (and his researcher Stanley Ries) that much of this material, including 50 buildings and 2000 drawings never seen here before, was unearthed for the show. Of interest too, are the old photographs and postcards in the exhibit which document Guimard's buildings when they were first constructed. One building, the historically significant *Humbert de Romans Concert Hall* is now destroyed and known only through old photos.

The exhibition which was organized under the sponsorship of the French Ministry of Foreign Affairs and assembled in collaboration with the *Musée des Arts Decoratifs* in Paris will travel to San Francisco (California Palace of the Legion of Honor July 23–August 30, 1970) and to Toronto (the Art Gallery of Ontario Oct. 2–Nov. 9, 1970). Then it will go to Paris to be on view at the *Musée des Arts Decoratifs* next winter. Another point of interest is that Guimard's wallpaper design for the *Castel Beranger* has been reproduced by Jack Lenor Larsen in original scale and colors, to be produced commercially by Karl Mann Associates.

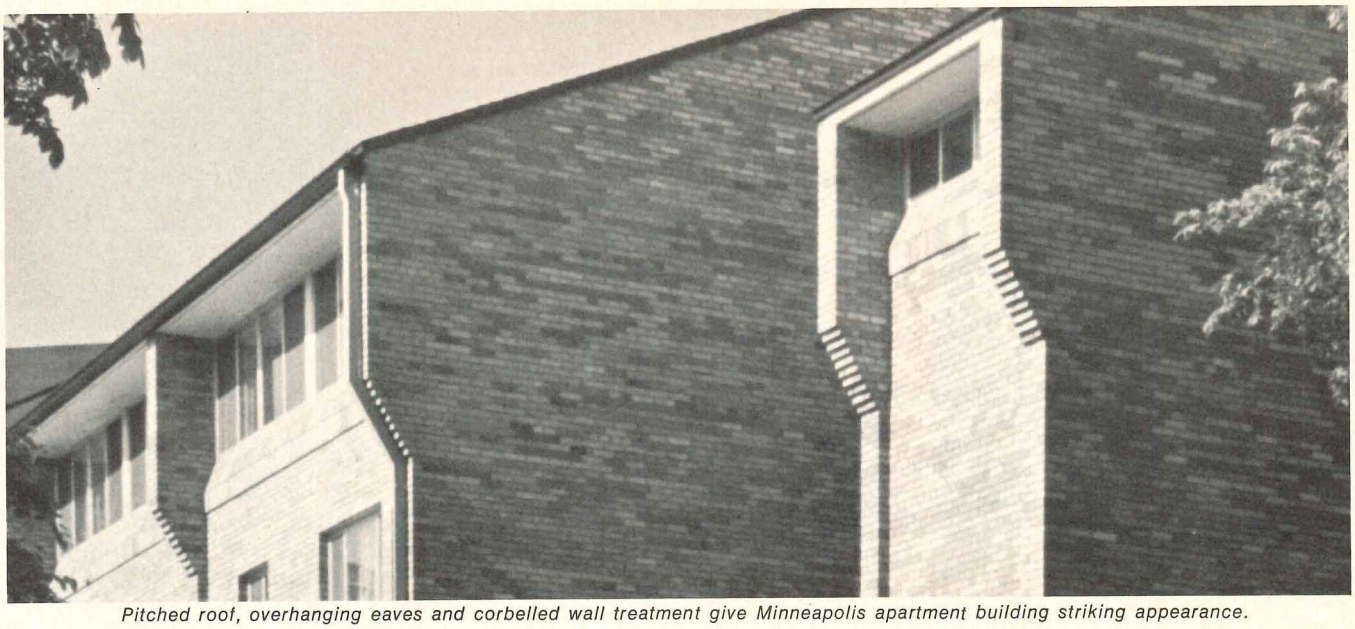
Installation Techniques on Exhibit

When René d'Harnoncourt died in July 1968, immediately following his 19 year directorship of the Museum of Modern Art, Ludwig Glaeser, Curator of MOMA's Department of Architecture, conceived of a small memorial exhibition dedicated to his installation techniques.

But it was not until February of this year that the exhibition was mounted — at MOMA's neighbor, the Museum of Primitive Art, (of which Mr. d'Harnoncourt was vice-president). Mr. Glaeser selected and installed the exhibit, limited principally to two of d'Harnoncourt's favorite exhibitions on primitive art and shown at the Modern in the '40s. A prodigious amount of research and text material for the show was provided by Mordechai Omer, also on the MOMA staff, who has been preparing the forthcoming book *René d'Harnoncourt: His Art of Installation.*

D'Harnoncourt's installation process included drawing the individual objects in each exhibit, then working toward their groupings, sequences, and finally vistas of the total arrangement. An over-all concept was crucial to the selection of exhibited works and the major organizing force for the show: the concept was reinforced by the positioning of objects in space, in relation to each other, and by their lighting. D'Harnoncourt even considered the circulation of museum goers in this regard, analyzing perspectives from which they would view the exhibits.

The installation of the d'Harnoncourt exhibition itself was unique, particularly a room of staggered black light boxes on which were grouped color photographs and explanatory text. Abigail Moseley was the graphic designer for the show.



Pitched roof, overhanging eaves and corbelled wall treatment give Minneapolis apartment building striking appearance.

Fire - resistant pitched roof practical with Flexicore decks

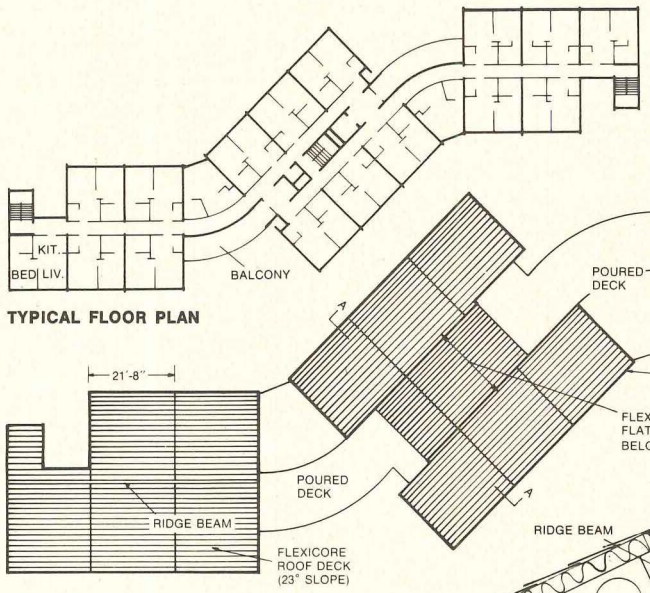
This four-story apartment in Minneapolis is a wall-bearing building with precast concrete Flexicore floors and pitched roof.

The Flexicore decks span longitudinally and are supported on transverse 12-inch masonry walls. Bond beams were poured at each floor with weld plates positioned in the beams. Ends of Flexicore decks were field welded to the weld plates.

At the roof, the top surface of the bearing walls was sloped at 23 degrees and a bond beam formed at the bearing level. The precast roof deck was welded to plates in the bond beam at 48-inch centers.

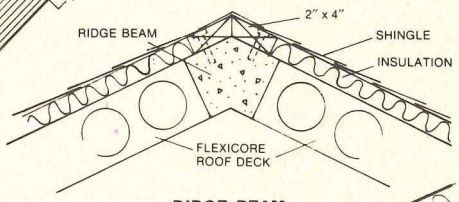
The 64-unit building is owned by the Minneapolis Housing and Redevelopment Authority. Architect is Donald E. Hustad, Minneapolis.

An 8-page report on this project is available from The Flexicore Co., Inc., P. O. Box 825, Dayton, Ohio 45401, phone 513/223-7111. Or, look for Flexicore in the white pages of your phone book.

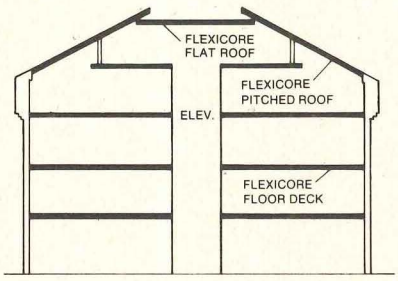


TYPICAL FLOOR PLAN

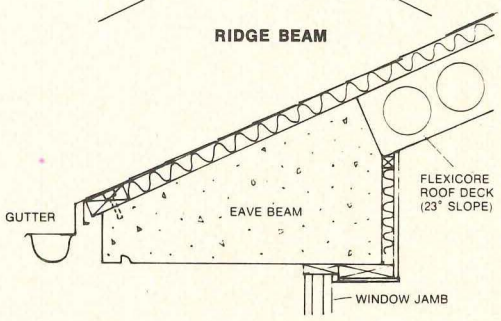
FLEXICORE FRAMING PLAN
PITCHED ROOF AND HIGH FLAT ROOF



RIDGE BEAM



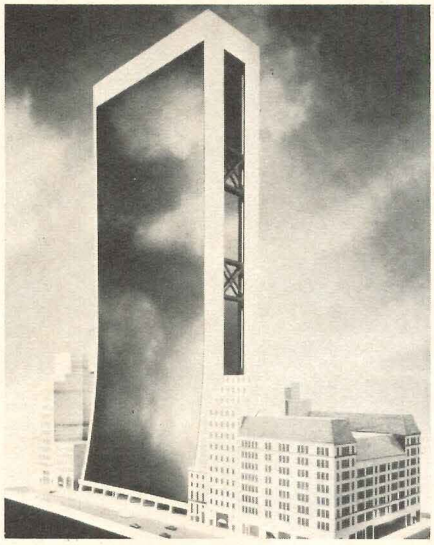
SECTION A
CENTER BUILDING

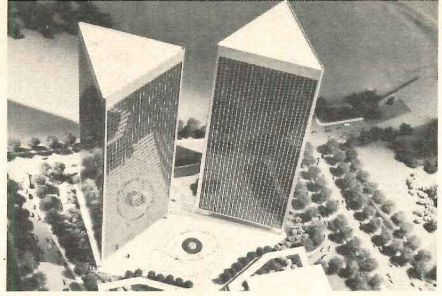


EAVE BEAM

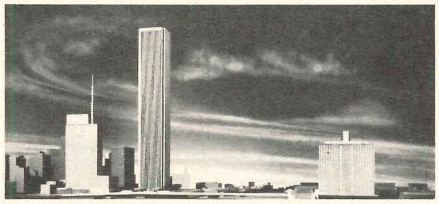
flexicore®
HI-STRESS DECK

On Readers' Service Card, Circle No. 347





Theme Center Towers
Los Angeles, California
Minoru Yamasaki, architect



Standard Oil Company (Indiana)
Chicago, Illinois
Edward Durell Stone, architect

Office Building for Avon Products
New York, N.Y.
Gordon Bunshaft, Skidmore, Owings & Merrill, architect

Block-Buster Approach to Architecture

The architectural profession talks enough about the environmental approach to architectural design, but obviously it hasn't convinced everybody yet. Reality indicates that a big favorite among some of our best known architects is the *block-buster*. The travertine-clad office building by SOM's Gordon Bunshaft (shown here) will be a copy of his office building slated for the site of Stern's Department Store on 42nd Street, (P/A Dec. 1969, p. 33), which is a copy of C.F. Murphy's Federal Bank Building in Chicago. The difference here is that columns are not expressed so that the facade may be one expanse of grey-tinted glass. Besides being a facile solution to New York zoning restrictions, this building guarantees to obliterate the scale and the street activity of one of Manhattan's most important blocks in the heart of the shopping-art gallery district (right off the intersection of 57th Street and Fifth Avenue).

The other building, by Edward Durell Stone, is a one-upmanship move to be the highest building in Chicago (a distinction the Hancock tower held for a few months). Stone's masonry and glass Standard Oil Building is a repeat of the slick marble-clad tower-cum-plaza solution that was foisted upon one of New York's most important open spaces last year (the GM office building, across from the Plaza Hotel). Ironically, Ed Stone has turned up with a winning Breakthrough scheme (p. 132) that demonstrates that in his office there is still a stone unturned.

Also shown here is Minoru Yamasaki's latest addition to Century Plaza development in Los Angeles, twin triangular towers of aluminum and glass. Since L.A. seems less concerned with the urban milieu than the freeway, this block-buster complex is probably in keeping with that spirit. And underneath is the world's largest underground parking garage for 6000 cars.

Urban Development Utilizes Warehouse-Dock Area

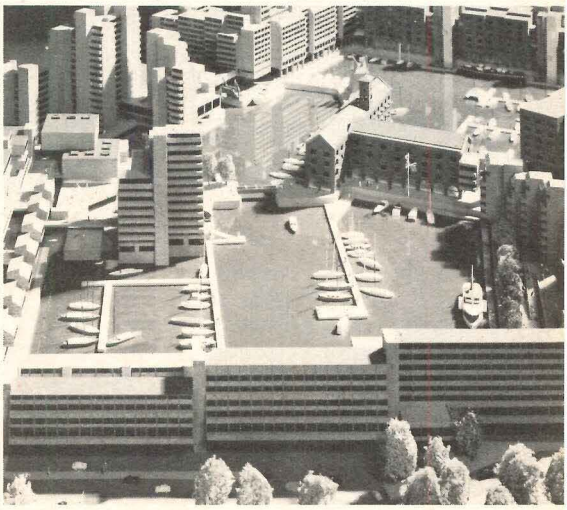
The winning competitor for the Greater London Council's redevelopment of St. Katherine Docks plans a varied scheme of residential, commercial, and recreational facilities for the derelict area of wharfs and warehouses near the Tower Bridge. Architects Renton Howard Wood Associates of the Taylor Woodrow Group aim for an integrated, pedestrian-oriented community built around the historic dock buildings and Thomas Telford's 18th-Century dock basins along the Thames.

Commercial-recreational and residential construction will follow the division of the dock area into two distinct but adjoining basins. Around the West Dock basin and along the riverfront, a 776-room hotel, quayside chapel, Theatrevision Center, Sports Center, and the British Export Trade and Convention Center are planned. The Export Center will be housed in a converted warehouse originally designed by Philip Hardwick. Plans retain the brick façade and cross walls, but replace the floors, allowing flexible single and double height display areas.

Projected around the East Dock basin are schools and both public and privately-financed housing for 678 families. On the spit of land dividing the two basins, a yacht club will occupy a warehouse, designed in 1856 by George Aitchison. A restaurant in the vaults below offers dining in an area once reserved for convicts awaiting shipment to Australia.

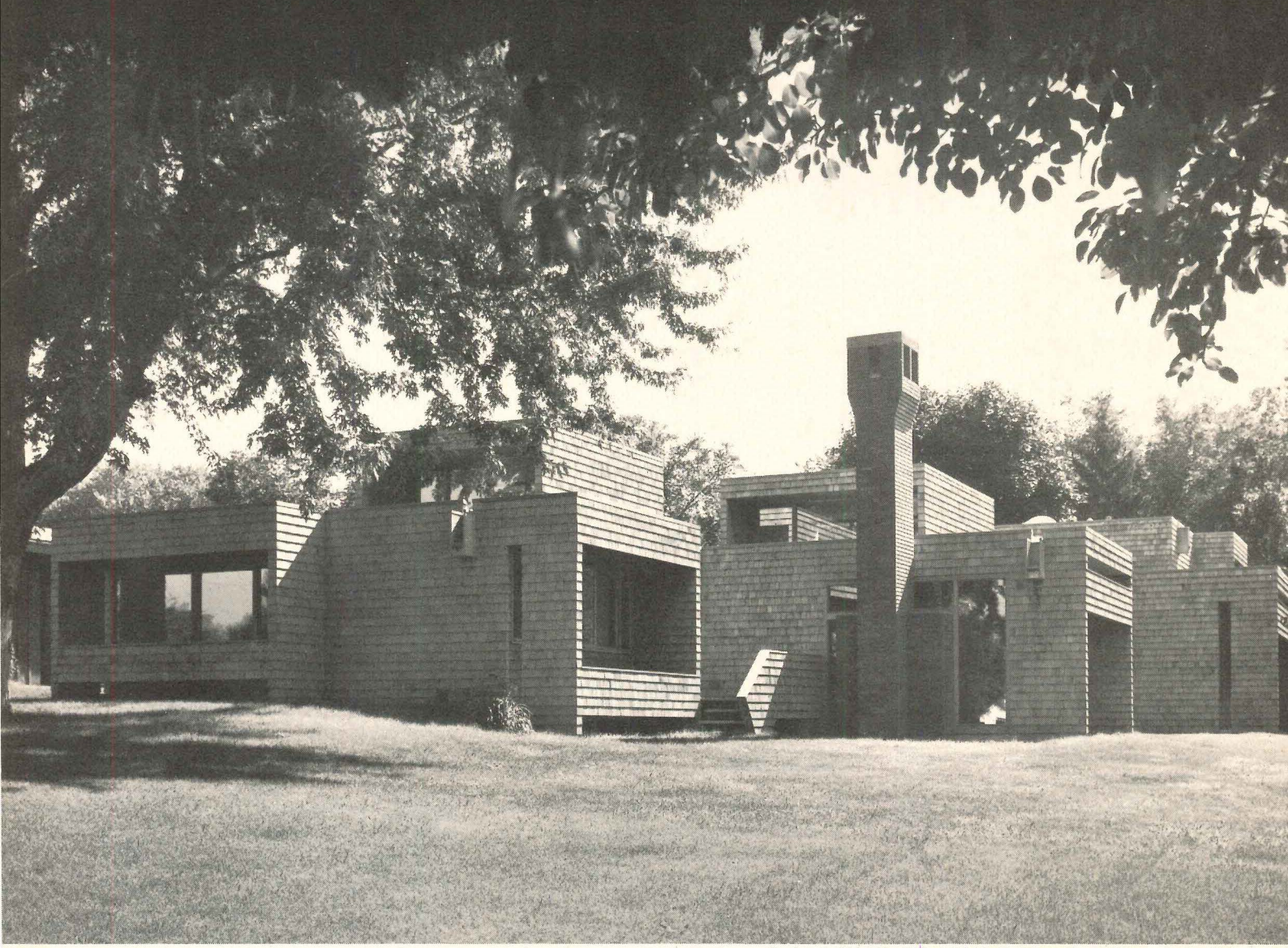
Pedestrian circulation is on two levels; one is on the quay, where cafes, kiosks, shops, riverside walkways, and a floating bar and restaurant will cater to visitors and residents; the other, an elevated walkway, links the hotel with other major structures.

The plan for St. Katherine Docks attempts to retain the general height, bulk, and character of the original structures without sacrificing interest and variety in its riverfront skyline. Engineers Ove Arup and Partners will work in close conjunction with the architects on problems of traffic engineering, building preservation, and support for the unique foundations of the area. Completion is scheduled for 1978, at a total cost of 22 million pounds.



Winning scheme for St. Katherine Docks, London England.

Red cedar shingles create a natural sight on a natural site.



Certigrade Shingles, 16"—5|2" Red Label grade. Architects: Parker Klein Associ

Everything just seems to fit. For example, mentally remove this Minneapolis home from its setting; or remove the setting from the home. Separated, each is diminished. Together, both are enhanced.

Red cedar shingles have a lot to do with it. Cedar's rich texture and inherent look of warmth are dramatically sympathetic with the wooded environment.

In addition, the use of a totally shingled exterior helps to unify and restrain the kinetic block forms that comprise the striking design. The result is a residence that appears solid but not stolid. Beautiful, but not blatant.

Red cedar shingles also create a naturally insulative barrier against weather extremes. They withstand even hurricane winds. And they remain maintenance-free for decades.

Complement your next design with the enduring beauty of red cedar. But insist on the real thing: Certigrade shingles or Certi-Split shakes. They're worth it.

For details and money-saving application tips, write: 5510 Whit Bldg., Seattle, Wash. 98101. (In Canada: 1055 West Hasting St., Vancouver 1, B.C.)

THE CROWNING TOUCH OF QUALITY · RED CEDAR SHINGLES & HANDSPLIT SHAKES ·

Red Cedar Shingle & Handsplit Shake Bureau

One of a series presented by members of the American Wood Council.

On Readers' Service Card, Circle No. 341

Will This Marriage Work?

In late February the New York Chapter of the AIA sponsored a panel discussion on "The Architect and the Community as His Client" that highlighted some important issues regarding the oft-proposed union of community and architect.

The four-man panel included: Herman Wrice, president of the Young Great Society, developers of large-scale housing and rehabilitation projects in the Philadelphia area; Harold Bell, director of the Urban Action and Experimentation program at Columbia University; John Doar, who has worked for architect I. M. Pei with community groups in Bedford-Stuyvesant; and Frederick P. Rose, a real estate developer and consultant to the City Planning Commission in New York. Architect J. Max Bond moderated.

Despite disruptions by special interest groups, the panel discussion did touch on crucial problems regarding the architect's and the community's responsibilities and capabilities:

- The traditional assumption regarding the architect's responsibilities involves three basic actions — finding what the client wants, putting it on paper, and following it through.
- But when the architect tries to plan for the ghetto, he thinks in terms of designing a "clean room" — his own predisposition may override consideration of the needs and desires of the community.
- The community must be actively involved in the whole process of renewal. However, the problem facing many communities today is how the community decides *who* it represents, especially when the majority vote is usually representative of nothing more than the necessity of divergent views to agree on something.
- As Max Bond suggested, the architect must decide how he can work with the community — will he find new issues or explore those that have already been defined?
- Relevant to the question, Herman Wrice emphasized that the community must control its architects, citing the instance in Philadelphia of a group of developers who wanted to plan an 80-block area. They were rejected by the community, which in turn found its own architects, and through their technical aid developed a plan.
- Harold Bell pointed out disadvantages shared by many community planning groups: They are composed of people locked into a problem they didn't choose, who lack the expertise they truly need to help themselves.
- Herman Wrice contended that the community must still decide for itself what it wants and then see its desires implemented by professionals. He further suggested that the architect live in the neighborhood, (although this, in itself, raises issues of feasibility, however beneficial).

All of these arguments presume that an organized community has some leverage in determining its future development. Protests at the meeting by the Cooper Square Community Development Committee and Businessman's Association testified to the contrary. The group has appealed repeatedly to the City Planning Commission against the proposed rezoning of Third Avenue below 14 Street. Present zoning codes specify that a portion of a lot must be left vacant; real estate operators claim this makes the land less profitable, and is a deterrent to residential construction. New zoning would raise densities on the block front areas.

Cooper Square residents contend that the result will be the usual burst of high-rise construction which will drive real estate values up and force low-income and moderate-income families out, so that housing can be built for "rich people." Protests at the panel discussion were directed against real estate developer and consultant to the City Planning Commissioner, Frederick Rose: the reaction, however, is really a response to the City Planning Commission Chairman Donald H. Elliot's decision to revive the zoning change, after it had been "dropped" last year following a heated public hearing. At that time, 113 planners petitioned against the rezoning (at least 25 signatures came from members of Chairman Elliot's own staff).

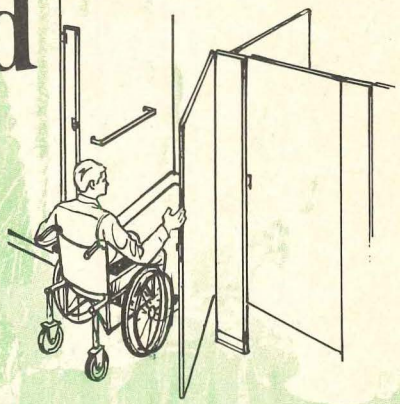
Even at this date, a test case plot of land in the area is awaiting a decision from the Board of Standards and Appeals for a variance from existing zoning. Mr. Elliot's decision to proceed with the proposal despite such strong dissent does indeed seem, as a member of the City Planning Commission, Beverly Spatt, put it, a "repudiation of the master plan," which purportedly espouses community participation in planning.

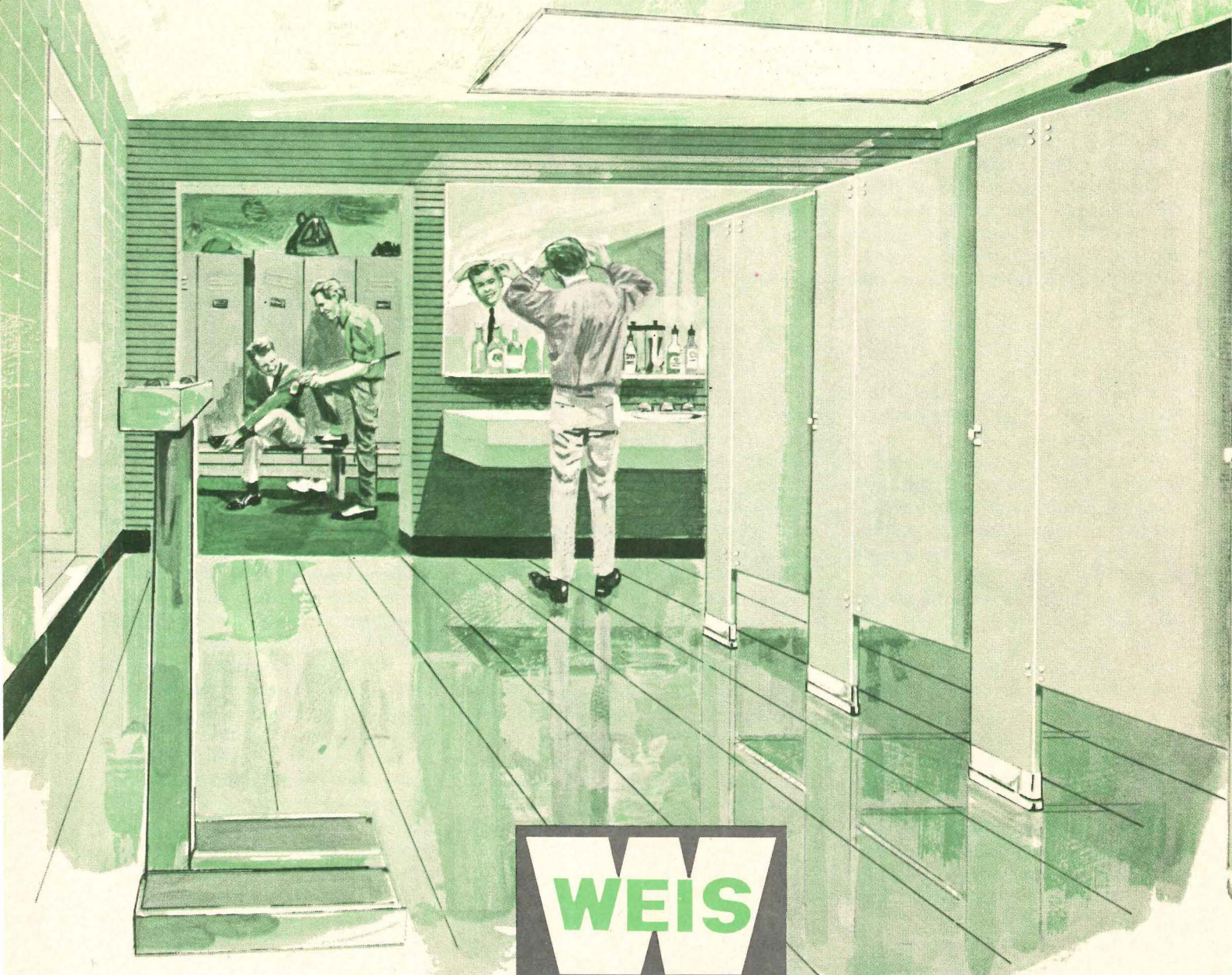
Calendar

"Architecture of Involvement" is the theme of the **31st National Conference on Religious Architecture** to be held at the Marriott Twin Bridges Hotel on April 11–22, 1970. . . . A noted group of speakers is scheduled to participate in the **Construction Specification Institute's 14th Annual Convention** to be held June 8-10, 1970, at the Conrad-Hilton Hotel in Chicago. . . . The **Fourth Scandinavian Furniture Fair** will be held from May 6–10, 1970 in Copenhagen. . . . A **conference on incorporating humanities and social sciences into engineering education** will be conducted in June 1970 by the American Society for Engineering Education. . . . **Plastics in Building** will be the subject of an International Symposium, April 27–29 in Rotterdam, the Netherlands. . . . Plastics and their employment in buildings will be explored in a special summer session at the **Massachusetts Institute of Technology,** June 29–July 3, 1970. . . . **"Transferring School Building Systems Experience"** will be the subject of a special national conference to be held at the Shoreham Hotel in Washington, D.C., on May 21–22. . . . Trinity College, Hartford, Conn., is planning a **Spring Arts Festival** April 16–21 with Environmentals: Man, Art, and Community as its theme. Program events include a panel discussion, multimedia happenings and a theatrical performance on "Urban Blight". . . . An **International Institute of Design Summer School** will be inaugurated in London during July and August of this year. The objective of the School is to gather together a group of highly motivated senior architectural students and recent graduates from all over the world.

To plan for the comfort and convenience of the handicapped

Commonly referred to in this industry as the paraplegic toilet compartment, the unit features an out-swinging door and added compartment width for easier entrance. Grab bars are mounted on each interior side wall. Your Weis man can furnish you with complete information. Find him listed in the Weis catalog in Sweet's.





WEIS

HENRY WEIS MFG. CO.
ELKHART, INDIANA

See Weis in Sweet's

Wise move—CALL YOUR WEIS MAN

On Readers' Service Card, Circle No. 343

Active Month in Washington

By E. E. Halmos, Jr.

HUD Selects Final 22

The final selection of the 22 consortia that will build HUD's "Operation Breakthrough" housing units on 11 selected sites contained some matters of major interest to architects — perhaps, most interesting, was the fact that none of the winning proposals was bizarre or even extremely modern in appearance. HUD said it had found that low-income families weren't any more interested in ultra special appearance than middle and high income groups. (For more comments on winners see p. 124.)

All the site planning contracts went to architects (only one firm listed itself as an A–E):

Houston, Tex. . . . Caudill Rowlett Scott, Houston

Indianapolis, Ind . . . Skidmore Owings & Merrill, Washington, D. C.

Jersey City, N. J. . . . David A. Crane, Philadelphia, Pa.

Kalamazoo, Mich . . . Perkins and Will, Chicago, Ill.

King County, Wash. . . . Eckbo, Dean, Austin & Williams, San Francisco, Calif.

Macon, Ga. . . . Reynolds, Smith & Hills, Jacksonville, Fla.

Memphis, Tenn. . . . Miller, Wihry & Brooks, Louisville, Ky.

Sacramento, Calif. . . . Wurster, Bernardi & Emmons, Inc., San Francisco, Calif.

St. Louis, Mo. . . . Hellmuth, Obata & Kassabaum, Inc., St. Louis

Seattle, Wash. . . . Building Systems Development, San Francisco, Calif.

Wilmington, Del. . . . RTKL, Inc., Baltimore, Md.

Hopefully, some of the projects will be completed within the current year — and will then become the bases for recommendations to the building industry and possibly to Congress (for new legislation), having undergone constant supervision and inspection both during and after construction.

Cost hasn't been determined — but there's little question but that 1) Congress will back the program; 2) lawmakers will protect it from any undue interference by labor unions (four of whose chieftains attended the Romney press conference) on jurisdictional or other protests — including any attempted boycott of offsite or prefabricated components or materials.

(The latter point was made clear enough by speakers at the joint AIA–Consulting Engineers Council "legislative seminar" in Washington in mid-February.)

Recent Minority Group Proposals

- The Small Business Administration has proposed that it act as "general contractor" on "minor construction work (what's "minor" is not specified) for major agencies. Then SBA would let actual subcontracts with special favor toward minority-group contractors. (The agency is already doing something like this on procurement of office supplies for some federal agencies.)

Contractor organizations have already registered protests — in part on ground that such action would be patently illegal.

- Meanwhile, a quietly-held (but not quiet) meeting of an "Inter Agency Committee on Construction Opportunities for Minority Group Contractors" was chaired by HUD's Assistant Secretary for Equal Employment Opportunity, Samuel J. Simmons. The meeting left some executives of major industry groups (despite vehement denials) with the impression that they were being threatened with a "quota" system of contract awards on government work. Reason: Black and Spanish-American contractor organization leaders, who had met with Simmons' group earlier, remained, and when the large-industry representatives appeared, some shouted demands for racial recognition from "whitey."

Simmons insisted the meeting was purely an exploratory one — an extension of Mr. Nixon's original "black capitalism" pledges; his committee is expected to come up with recommendations within another couple of months.

- Transportation Secretary Volpe ordered that no federal-aid highway work may now proceed unless there is "adequate" housing in existence to take care of anyone displaced by road work. It could heavily delay start of work, if new housing must be built and obtained, even before condemnation proceedings on right-of-way begin.
- Finally, the Civil Rights Commission recommended to the President that no new federal buildings should be built in outlying or suburban areas, unless adequate housing for low- and middle-income workers is available on a racially mixed basis.

Preservation Concerns in Capitol City

For one thing, a battle raged around the rococo, almost solid-stone building and its clock tower on Pennsylvania Avenue — a relic of the late 1890s that once housed the Post Office department. Originally slated for demolition in the 1928 plans for the "Federal Triangle," the 315-ft high clock tower was reprieved in 1965 plans of the Temporary Commission on Pennsylvania Avenue. Now, the Fine Arts Commission has urged that the tower be demolished as an "incongruity." Many supporters — including Nathaniel M. Owings, architect-chairman of the Pennsylvania Avenue Commission, are rushing to its defense.

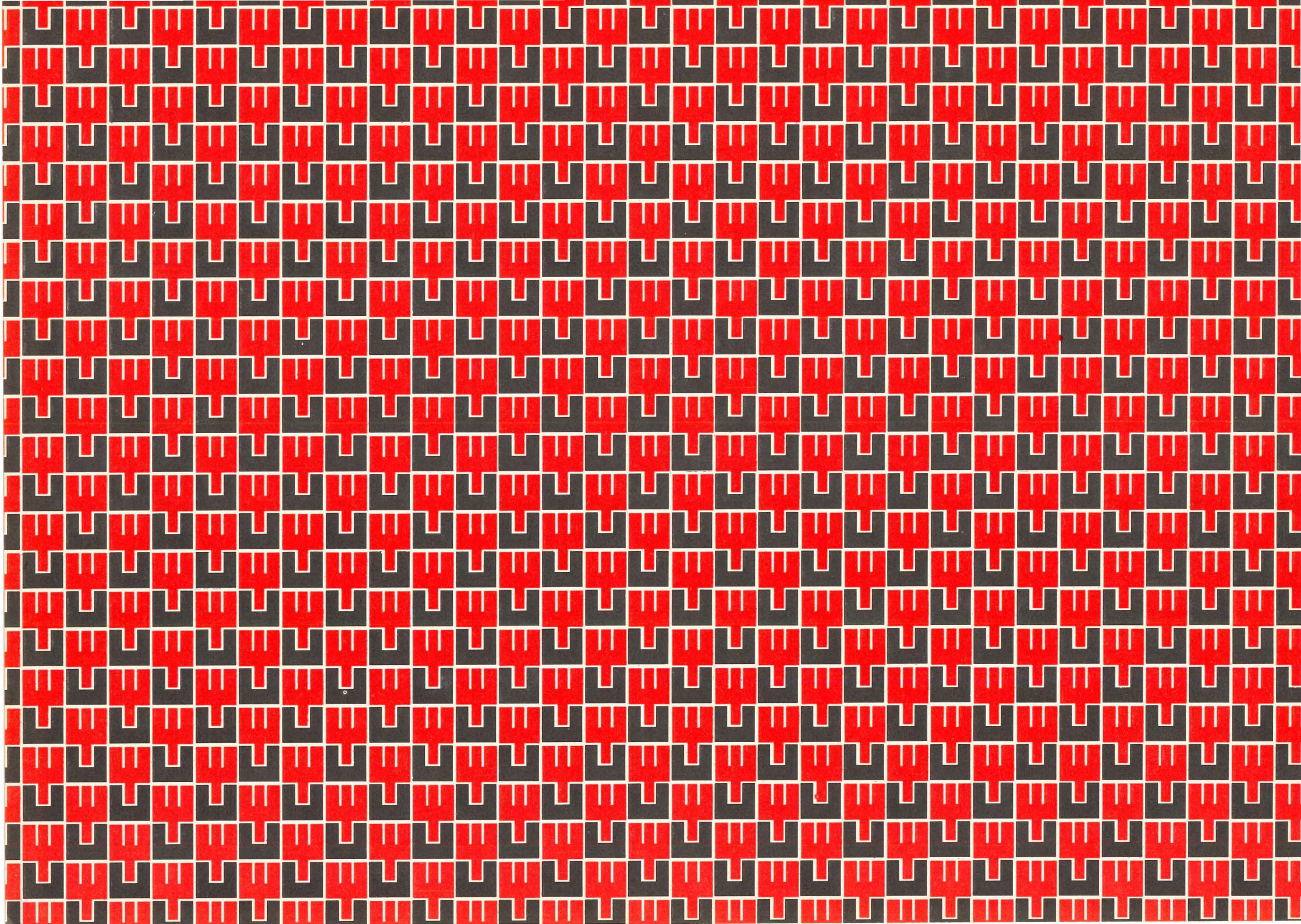
On another front, the House District Committee approved $350,000 for a study of a proposed "Dwight D. Eisenhower Memorial Sports Arena" that would be built near the Mall and Union Station to serve also as a convention center.

Obituary

Charles Abrams, urban planner, died on February 23 at the age of 68. Mr. Abrams held the Williams Professorship of City Planning at Harvard University School of Design at the time of his death. His latest book, a glossary of planning terms with commentary, "A Glommentary," is soon to be published.

Erratum:

In Esther McCoy's article on Los Angeles (P/A, March 1970 p. 38), the last line on the page should read ". . . leaving no doubt that Lovret's city is not a tree."



We interrupt our ad programs to introduce our new corporate symbol.

GLASS
(Mississippi Glass Company and the Hordis Group)
Patterned, wired, tempered, and insulated glass products.

INDUSTRIAL BOILER OPERATIONS
Steam generation equipment; pollution-free incineration systems; and chemical recovery units.

Uninterrupted, of course, is our ability to meet the most exacting design and product specifications of architects and engineers engaged in residential, commercial, industrial, institutional and governmental building.

C-E is the new corporate symbol for Combustion Engineering and its congeneric operations. Corporate Headquarters: Combustion Engineering, Inc., 277 Park Avenue, New York, New York 10017.

KATHABAR®
DEHUMIDIFICATION SYSTEMS
DRY UP COSTS



- Keep Powdered Foods Powdered, Crisp Foods Crisp
- Keep Cellars in Breweries & Processing Plants Dry & Free of Condensate
- Ends Sweating Pipes, Instrument Corrosion, Rust, Peeling Paint and Clammy Working Conditions
- Total Environmental Control at Your Fingertips
- Antibacterial Action

FOOD & CHEMICAL PROCESSING • HOSPITALS • WATER WORKS • PHARMACEUTICAL PROCESSING • BREWERIES • CLEAN ROOMS and ENVIRONMENTAL CHAMBERS • LABORATORIES • PLASTIC PROCESSING • PAPER MILLS

KATHABAR SYSTEMS
ROSS ENGINEERING DIVISION
Midland-Ross Corporation
New Brunswick, New Jersey 08903
Telephone: Area Code 201, 249-1040

On Readers' Service Card, Circle No. 375

Command Performance



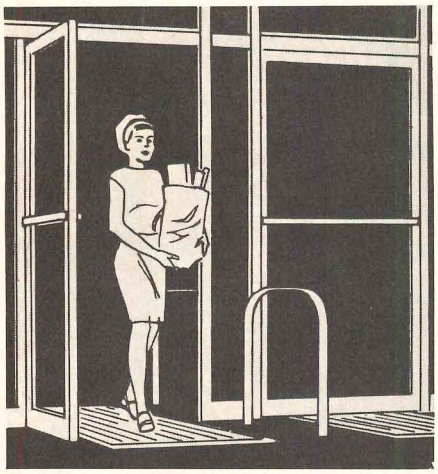
See Why Before You Buy a WHITEPRINTER

Compare the specifications, prices and performance of the whiteprinters that give you results comparable to others costing considerably more. Diazit Whiteprinters start at $274, F.O.B., Youngsville, N.C.

Free demonstration at your convenience. Circle reader service card or contact

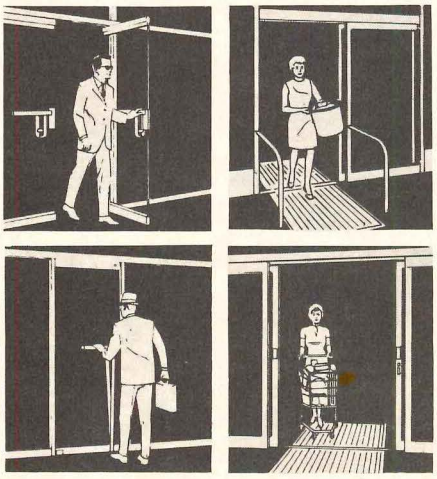
DIAZIT®
DIAZIT COMPANY, INC.
Phone 919/556-5188
Route U.S. # 1, Youngsville, N.C. 27596

On Readers' Service Card, Circle No. 364



People come and people go. That's why we're always working on better ways to open doors.

- HYDRA-SLIDE®
- ELECTRA-SLIDE
- HYDRA-SWING®
- CONCEALED OVERHEAD CLOSERS
- R&K PITTCOMATIC®
  Reg. T.M., PPG Industries
- R&K SERIES 10 CHECKING FLOOR HINGES.



More efficient, more dependable ways of opening and closing doors... more attractively. That's our ever-present goal. But we don't stop there. We insist on making sure there's always instant service available... just in case. Door controls by Ronan & Kunzl, you can be sure, will meet your needs for design, safety and function. Let us tell you more.

fine door controls for over 20 years

RONAN & KUNZL, INC.
1225 S. Kalamazoo Ave., Marshall, Michigan 49068

On Readers' Service Card, Circle No. 411

A.W. Faber

Castell



Match your talent with Castell quality.

It's a natural combination.

You depend on exact grading. We keep our 20 degrees in their place. No grade crashing. This goes for the whole spectrum of our 20 superb degrees, 8B to 10H.

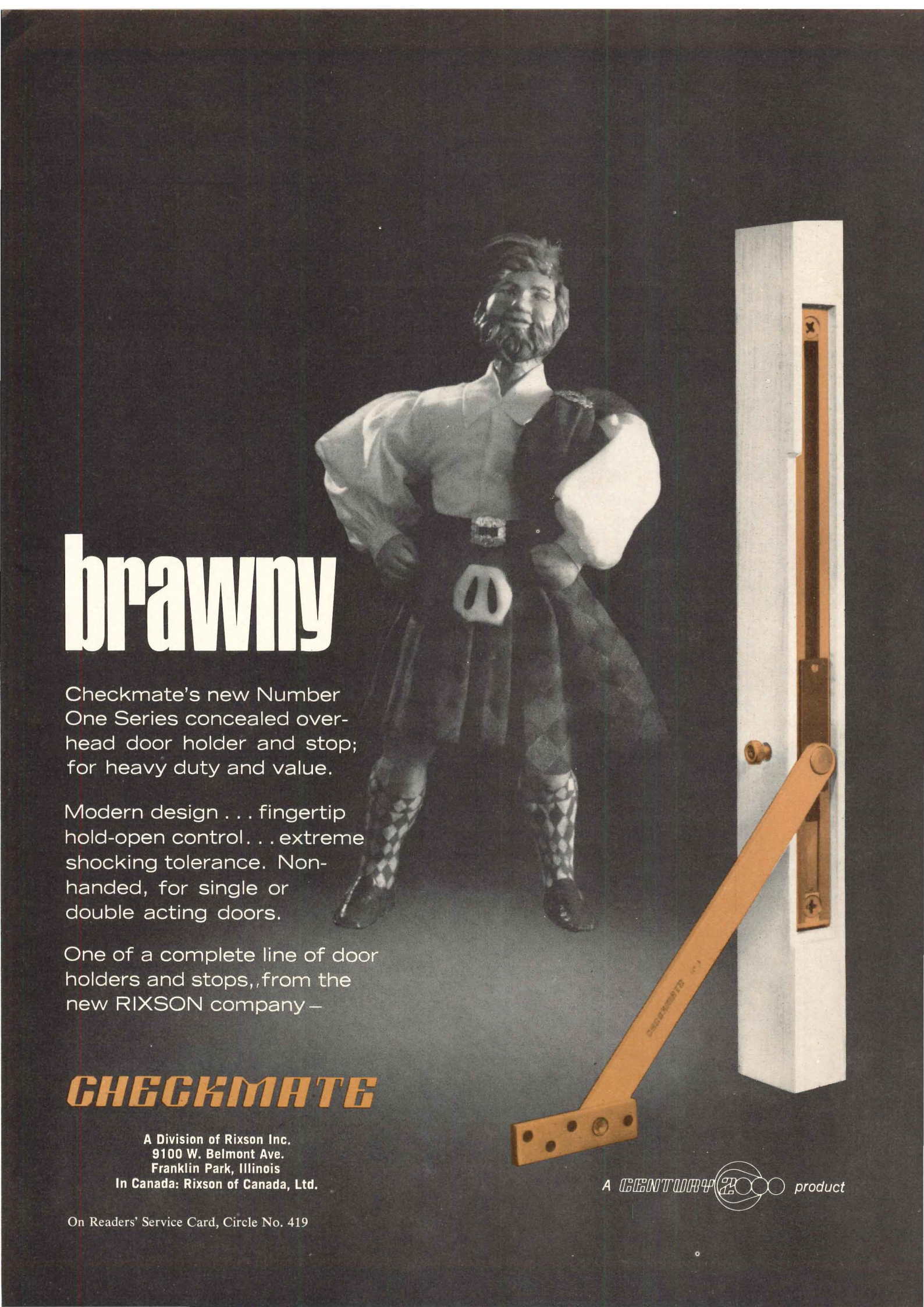
Castell 9000, the drawing pencil of the Masters, gives your board work the punch of a pro. Clean, crisp, uniform lines. No grit. 100% graphite saturation. Ultra black and opaque, Castell reproduces sharper, cleaner.

If you're a leadholder man, match up our Locktite Tel-A-Grade 9800SG with the light, no-slip comfort grip and Castell 9030 refill drawing leads, identical in quality to Castell 9000. Same professional results.

Write on your company letterhead for a free sample of Castell 9000 or Castell 9030 in the degree of your choice. As a bonus we'll also send you a sample Magic Rub eraser, perfect for polyester film and a fixture in drafting rooms. A.W.Faber-Castell Pencil Co., Inc., 41-47 Dickerson Street, Newark, N.J. 07103.






brawny
Checkmate's new Number One Series concealed overhead door holder and stop; for heavy duty and value.
Modern design . . . fingertip hold-open control. . . extreme shocking tolerance. Non-handed, for single or double acting doors.
One of a complete line of door holders and stops, from the new RIXSON company—
CHECKMATE
A Division of Rixson Inc.
9100 W. Belmont Ave.
Franklin Park, Illinois
In Canada: Rixson of Canada, Ltd.
A CENTURY 21 product
On Readers' Service Card, Circle No. 419

PRODUCTS & LITERATURE



Carrier

The Carrier Corp. has recently made available a computer service designed to assist the architect or consulting engineer in selecting the right components for big building air-conditioning systems. The Carrier system can be timesaving, as well as offering an increased selection of available equipment.

At present, 24 of Carrier's 55 offices in the U. S. and Canada are equipped with the telecommunication terminals needed to directly contact the computer. The rest are expected to be ready by the end of 1970. If a consultant wishes to use the Carrier service, he contacts a Carrier field office and supplies the necessary input data as he would for a manual selection. In about four hours, the computer will calculate the optimum system. Not only does the program include the best system but it also includes alternate systems that provide maximum service at minimum sacrifice. The consultant is free to choose a system of low initial cost but relatively high maintenance or vice versa. The information stored in the computer's memory bank not only represents initial costs and capacities but also includes owning and operating expenses.

Circle 100 on Readers' Service Card

Coating Estimating Guide

The Americoat Corp. is offering a pocket-size calculator for on the job estimates of all kinds of surface coatings. A major section of the chart is devoted to coating costs including both mil sq ft and per cent of volume coverages.

Circle 101 on Readers' Service Card

Selective Detection

Advanced Devices Laboratory Inc. is currently producing a microwave burglar alarm that is triggered by the movement of anything larger than a cat. Solid state circuitry allows the unit to avoid false detonations caused by loud noise or movement. The unit measures only 7" x 10" x 5" which means it can be concealed in a standard speaker box.

Circle 102 on Readers' Service Card

New Magazines of Interest

A magazine focusing on developments in building systems and construction will be published quarterly as a joint effort of Washington University (Seattle) and the University of Montreal. Called Industrialization Forum, its co-editors are Colin Davidson and Arnold Rosner, both architecture professors with the two universities. The magazine's format will be based on a key-work method of pre-classification and retrieval: articles are printed on pages perforated for easy detaching and filing, and 3" x 5" cards will be included for easy reference use. Subscriptions are $5 a year and available from Washington University, Box 1079, St. Louis, Mo. 63130.

Circle 103 on Readers' Service Card

Acoustically Oriented Drapery

Acousticorp Inc., is circulating information on their Acoustidrapes, a grass weave, foam-backed drapery with excellent sound absorbing characteristics. Useful for audio demonstration areas, Acoustridrape comes in a variety of colors.

Circle 104 on Readers' Service Card

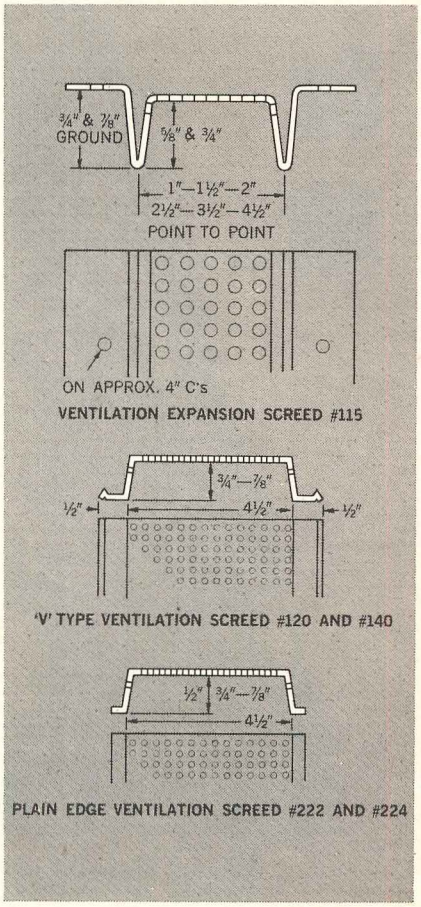
Electric Baseboard Heaters

The National Electric Manufacturers' Association is circulating a brochure which contains a complete list of baseboard heaters approved for cleanliness. Twenty-one of the largest manufacturers are included.

Circle 105 on Readers' Service Card

(More products on page 52)

Superior metal trim



Get neater appearance, more durability with Superior ventilation expansion screed. Install in attic spaces, arcades, canopies, corridors; around eaves, foundations. Made of galvanized steel . . . also available in zinc and aluminum. Special trim available. For immediate information, phone 415 591-4461 (Belmont, Calif.). Or, write Electrical Division, H. K. Porter Company, Inc., Porter Building, Pittsburgh, Pa.

BETTER PRODUCTS BY DESIGN

PORTER

On Readers' Service Card, Circle No. 433

When your aggregate is exposed like this...



Lime Crest makes the best impression

Eggers and Higgins think so. For the facing of American Hoechst Corporation's new headquarters building in Bridgewater, New Jersey they specified a 1½" Lime Crest White Aggregate. The massively-crystalline structure of Lime Crest stone assures them of both lasting sparkle and color contrast — an unusually rich texture to enhance their modern design.

Other leading architects think so, too. They use Lime Crest White Aggregates where appearance makes a difference. Since there's a Lime Crest Aggregate for **every** application, tell us about yours . . . we'll send you a sample so you can see for yourself.

Limestone Products Corporation of America
Newton, New Jersey

Please send me samples of Lime Crest White Aggregates.

NAME TITLE

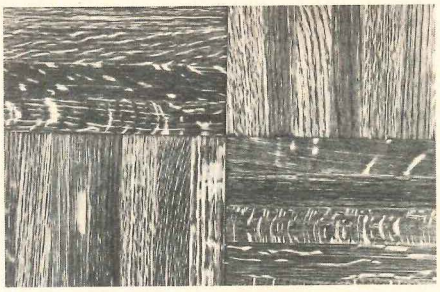
FIRM NAME

ADDRESS

On Readers' Service Card, Circle No. 381

PRODUCTS & LITERATURE

(Continued from page 51)



Irradiated Wood Flooring

Atlantic Richfield announces plans to begin full scale production of a new flooring called Permagrain, basically a plastic impregnated wood flooring which has been treated with gamma ray radiation. The flooring has all the beauty of natural wood with six times the abrasion resistance.
Circle 106 on Readers' Service Card

Damper Control Manual

Honeywell is offering a 60-page manual on airflow theory and damper applications for commercial, industrial, and institutional air conditioning systems. This profusely illustrated manual should be of interest to mechanical engineers, design engineers, and architects.
Circle 107 on Readers' Service Card

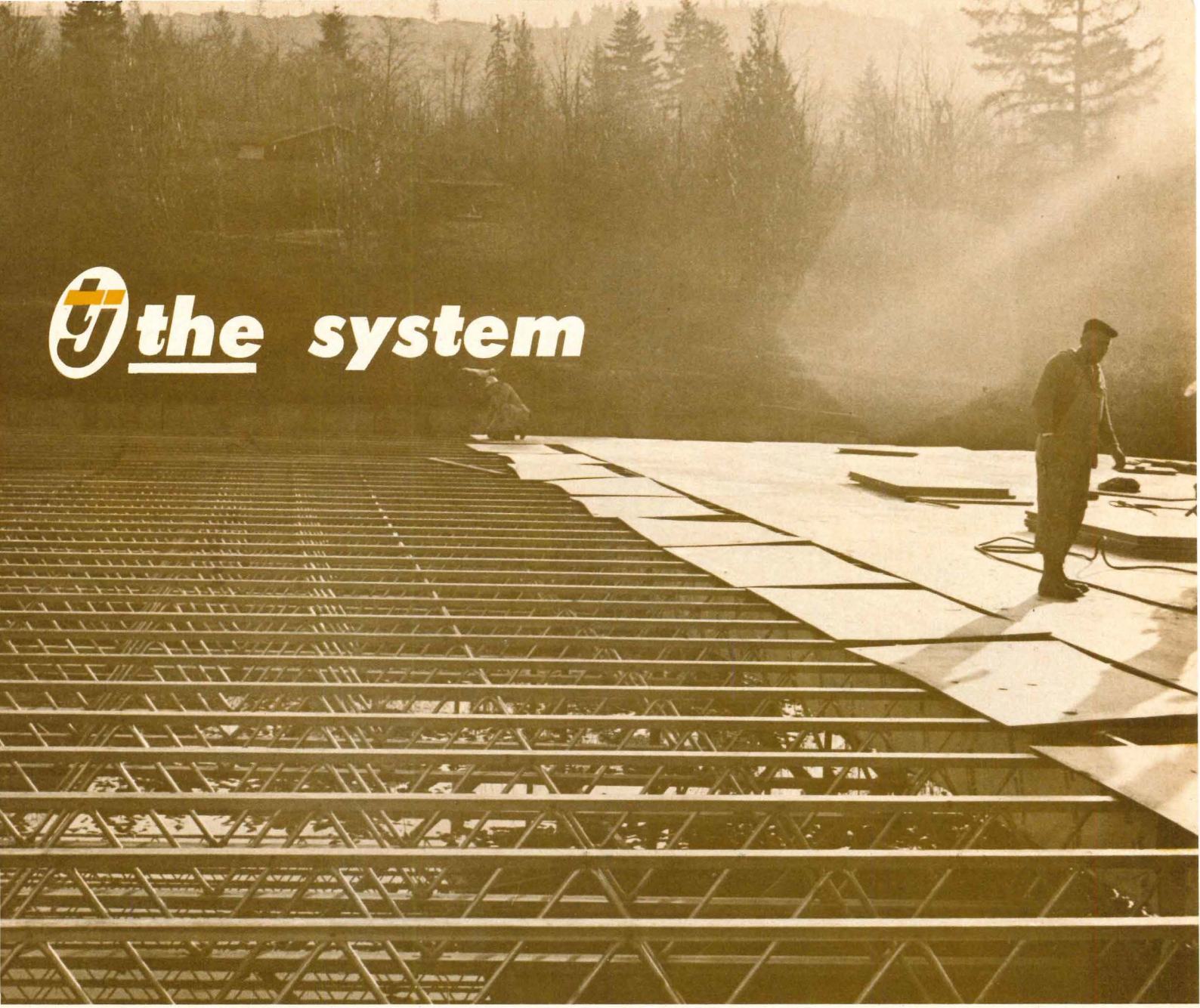
Synthetic Carpet Rundown

Allied Chemical is distributing a full color 12-page brochure on its Anso, Source, and Caprolan brand synthetic fiber carpets. The catalog illustrates various carpet applications in residential and commercial applications. Included in the back of the brochure is a run down comparison between the major synthetic fiber carpets and wool.
Circle 108 on Readers' Service Card

Hospital Coordination

Motorola Inc. is offering a new brochure on the Medi-Scan Hospital Staff Register System. The system allows rapid, low cost distribution of registration data to emergency and surgical areas, nursing floors, administration areas, information centers, or anywhere in the hospital.
Circle 109 on Readers' Service Card

(More products on page 60)



the long span roof and floor structural system with the built-in economies.

You can see some of those economics at a glance . . . the wide, nailable wood chords for direct attachment of plywood as a roof deck and for low cost ceiling materials. Those open webs save money, too, providing room for fast and easy installation of ductwork, wiring and plumbing.

Take a second look and you'll realize that TRUS JOISTS are light weight, fast to erect and because of that light weight require less costly footings, foundations and bearing walls.

What the picture doesn't show are the various TJ shapes, from parallel to pitched, tapered, curved and crescent, all economical and all custom engineered to your design. Need long spans? To 150 feet? You'll get delivery three weeks after you approve shop drawings.

TRUS JOISTS bear equally well on steel, masonry or frame construction. They have been used in thousands of schools, shopping centers, apartments and commercial buildings of every type over the past ten years.

Add up the advantages . . . . the savings and you'll more than likely want more information, perhaps a complete design manual or free cost estimate.

Just call or write . . . .

trus Joist®

9777 Chinden Blvd. Boise, Idaho 83702

Plants in: ARIZONA CALIFORNIA IDAHO IOWA OHIO OREGON CANADA (Alberta)

On Readers' Service Card, Circle No. 377



Wimsley, Bosch & Bruber, A. I. A.

Thanks for making our restroom what it is today!

Us girls love those dual-vend dispensers with both Kotex® napkins and Kotex tampons. Not like the restrooms in our old office building. Now every gal has the kind of protection she wants.

One out of two women today use tampons. So restrooms need both tampons and napkins. Bobrick Dispensers, Inc. makes a number of excellent dual-vend dispensers. We'll be happy to send you a free catalogue. Or see Bobrick, in Sweet's.

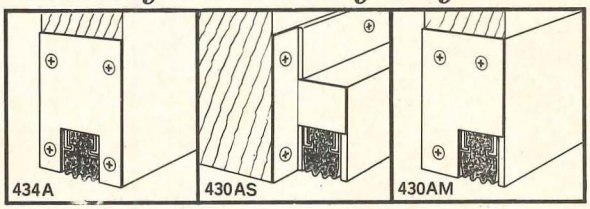
As usual, the architects' names aren't for real. But the gals' needs are.

Kimberly-Clark Corporation
Commercial Department Neenah, Wisconsin

KTX-189

On Readers' Service Card, Circle No. 352

AT LAST!
a complete line of
AUTOMATIC DOOR BOTTOMS
including 3 new heavy-duty models



434A New! Heavy Duty mortise

430AM New! Heavy Duty semi-mortise. (#431A has 5½" integral kick-plate)

430AS New! Heavy Duty surface mount

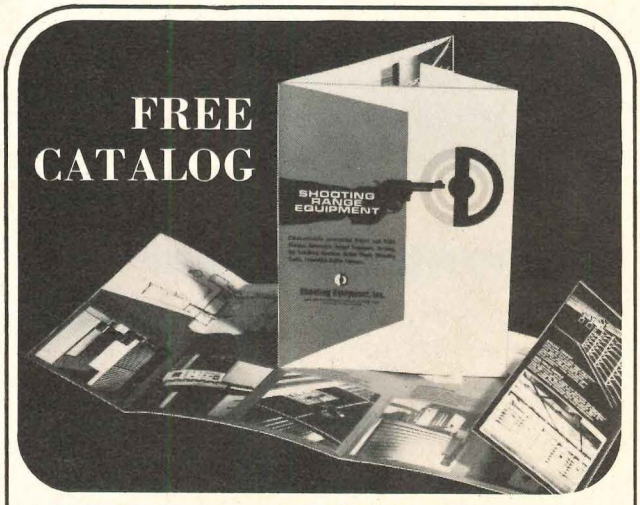
Plus 11 other automatic door bottom models for all types of commercial, industrial and residential use.

Three new heavy duty models have these exclusive features: 1) By moving only one screw the door bottom can be changed for a right- or left-hand door. 2) The length of the mechanism easily may be shortened a few inches, without disassembly, to fit smaller doors. 3) All three models seal up to ¾" opening 4) Drop bars are themselves sealed on both sides, by means of vinyl inserts, to prevent infiltration of air and noise up and over the bar (so solid a seal it actually pumps air you can feel with your hand). 5) Drop bar adjustment rod is hexagonal so that it does not vibrate out of adjustment. 6) Made of very heavy extruded aluminum. 7) Standard finish is clear anodized; optional is Duranodic #313.

PEMKO Manufacturing Company SEE US IN SWEET'S (S)

5755 LANDREGAN STREET • EMERYVILLE, CALIFORNIA 94608

On Readers' Service Card, Circle No. 384



PISTOL AND RIFLE RANGES

SEI designs and manufactures electronically controlled pistol and rifle ranges; automatic target transport, turning and hit sensitive systems; bullet traps, shooting stalls, and protective baffle systems. Free planning recommendations.

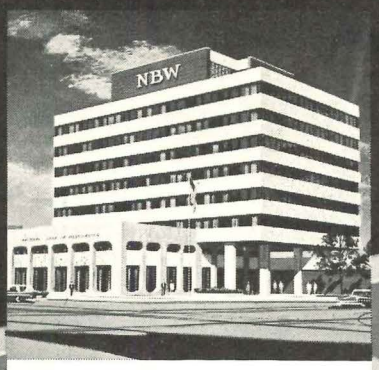
Shooting Equipment, Inc.

2001 NORTH PARKSIDE AVENUE • 312/889-6200
CHICAGO, ILLINOIS 60639

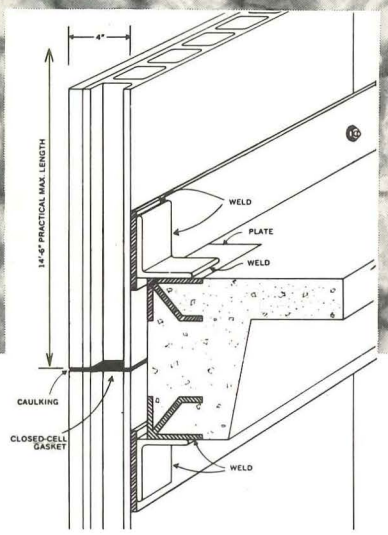
On Readers' Service Card, Circle No. 356

Scotwall Saved 500 Man Hours Here!

It took a five man crew 14 working days to set the 220 marble-faced Scotwall spandrel panels on the National Bank of Westchester. That's about half the time it would have taken to install the much heavier conventional panels.



Laszlo Papp and Associates, *architects;* R. C. Daly, *construction consultant,* Alexander-Jennings Construction Co., *general contractor;* Consolidated Stone Setters, *setting contractor.*



Scotwall panels have an asbestos-cement substrate faced with 7/8" marble or aggregate. The marble-faced panels weigh only 25 pounds per square foot and aggregate-face even less. They go up quickly with small crews and light equipment. Scotwall's combination of strength, stability and light weight permits a much lighter supporting structure and far greater design freedom.

The new Scotwall Panel System will give your buildings the beauty of marble or aggregate cladding for an in-place cost below that of many less desirable materials. Let us show you.

WRITE FOR YOUR COPY OF THE NEW SCOTWALL BROCHURE

THE INNOVATORS IN STONE PRODUCTS

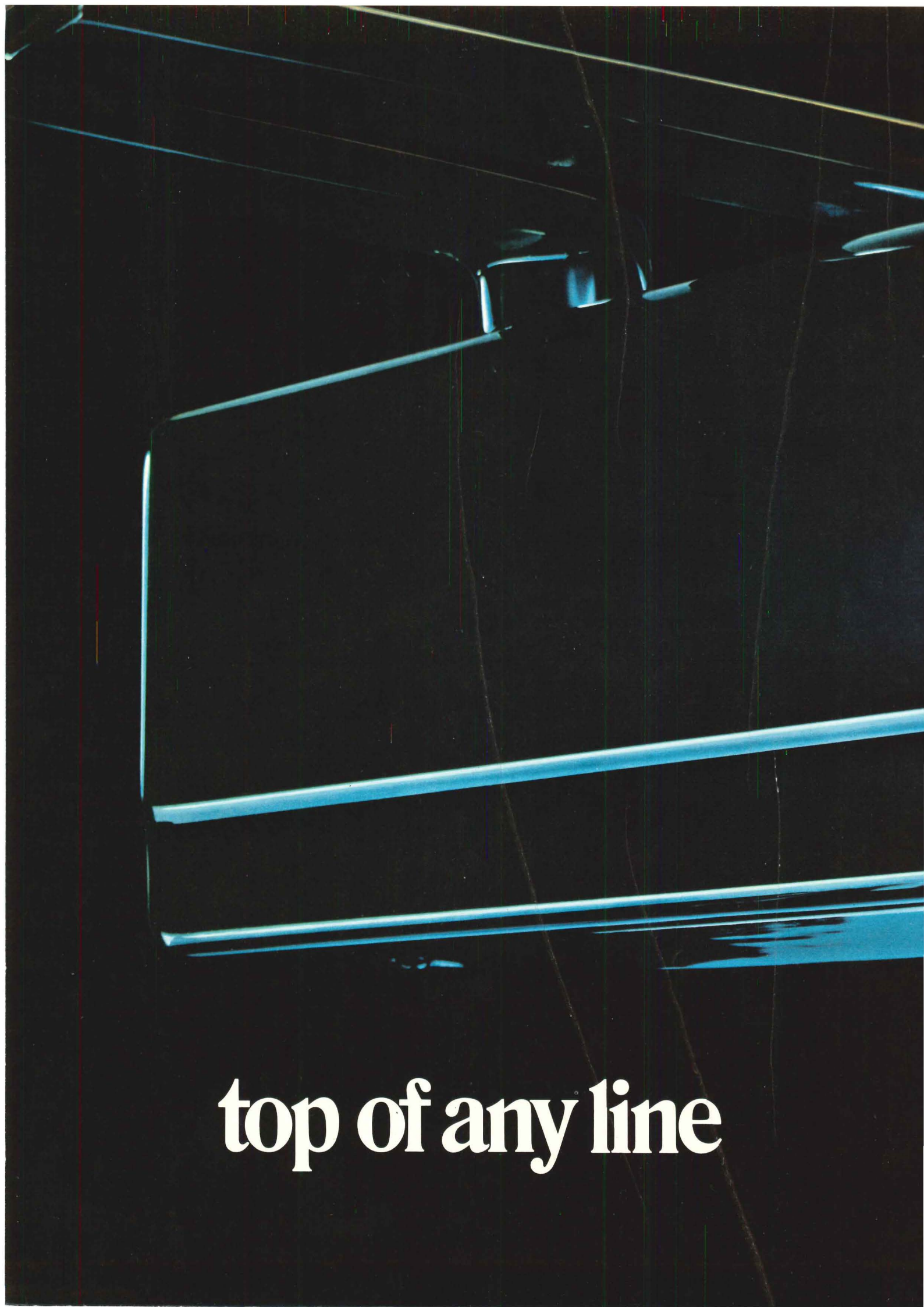
Georgia Marble Company

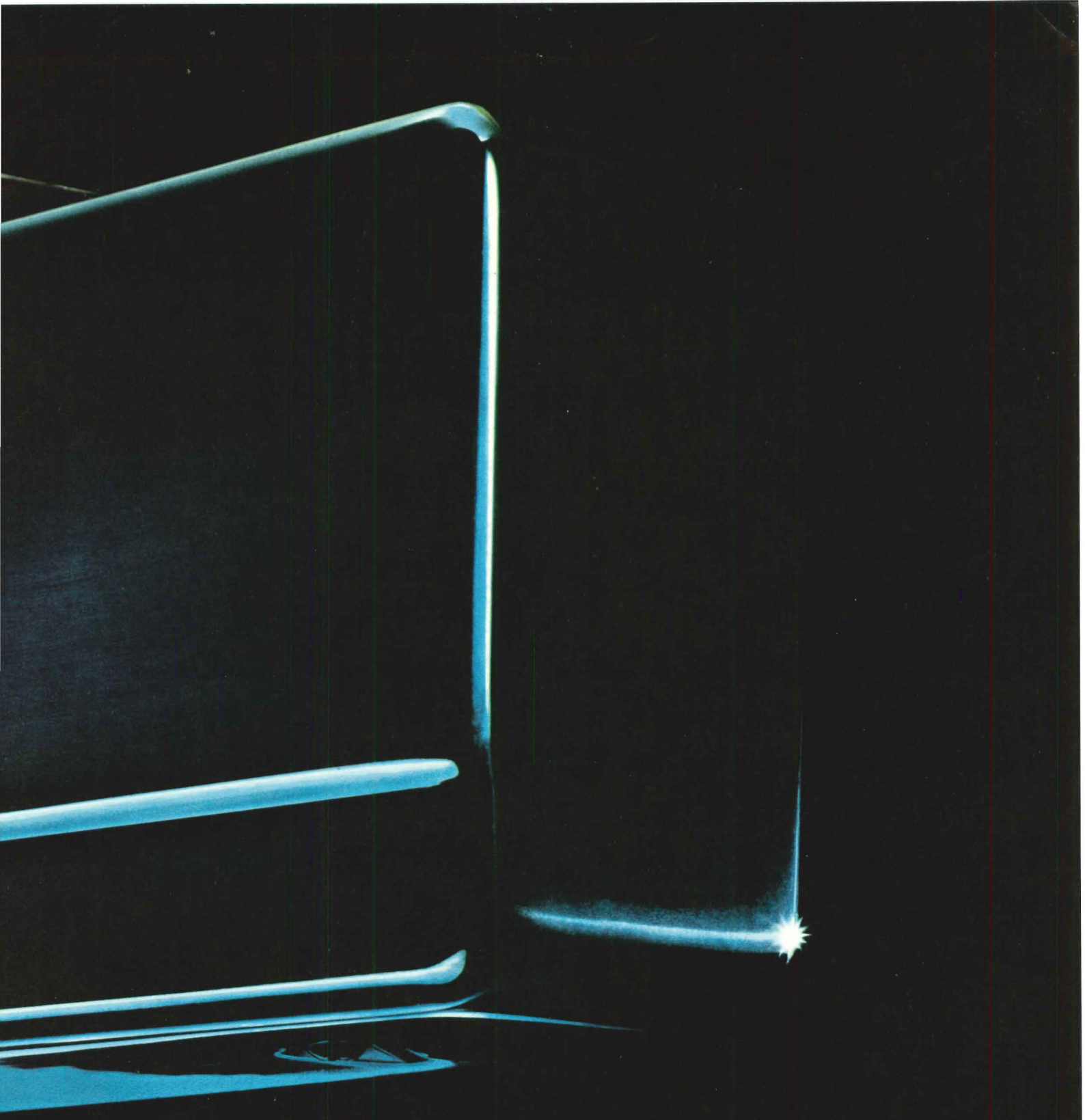
11 PRYOR STREET, S.W., ATLANTA, GEORGIA 30303
A subsidiary of Jim Walter Corporation

COAST-TO-COAST CONSULTING SERVICE—Our engineers stand ready to assist you any time anywhere on any project involving marble or limestone. A phone call will put one of our men across the desk from you in a matter of hours. Phone 404/688-2861.

MARBLE INSTITUTE OF AMERICA

On Readers' Service Card, Circle No. 395


top of any line



the Powerglide® 150 door closer

No point in superlatives. Let's just say that now all the features you want in a door closer are on tap in one smooth, good looking package. The ultimate refinement of the tested Powerglide line, the top of any line.

For one thing, the 150 series closer will handle any door. It can be inverted, even on a corner bracket, and comes complete with a special backcheck selector valve for standard or parallel arm applications.

The new closer is designed to control effectively a full range of door sizes. Its adjustable spring can be tuned to give a minimum of 50% extra closing power to compensate for any conceivable installation, location, or air flow pattern. For hospitals and other special installations, your customer can "dial" delays in its closing cycle. Finally, the trim, heavy-gauge cover that conceals the massive machinery of the 150 series closer blends in and belongs. The nonferrous bronze or aluminum cover is available in all standard plated and sprayed finishes.

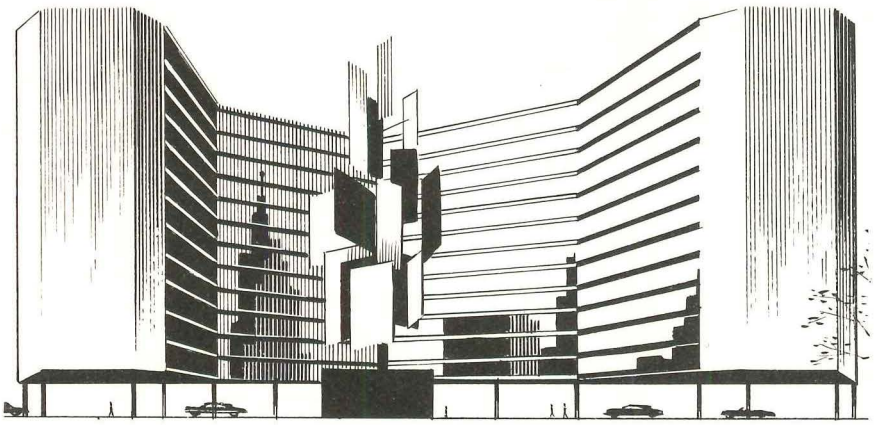
For full details on this product of more than 80 years of door closer experience, write: Sargent & Company, 100 Sargent Drive, New Haven, Connecticut 06509 • Peterborough, Ontario • Member Producers' Council

SARGENT®

A complete line of advanced architectural hardware, including the Sargent Maximum Security System.

Coming soon:

Weath·R·Proof



A New Name in Insulating Glass

A New Product in the insulating glass field, Weath-R-Proof has been under extensive research, development and testing by Thermoproof Glass Company since 1965.

A 20 Year Warranty stands behind each Weath-R-Proof unit . . . an expression of our confidence in a product manufactured with innovative techniques and the finest materials.

An Established Company in the insulating glass field, Thermoproof Glass Company is large enough to handle monumental glazing jobs . . . small enough to be personal.

Weath·R·Proof made more ways to fit more ideas
INSULATING GLASS

Full color insert in Sweet's 4a/Th

Thermoproof Glass Company—4815 Cabot Avenue—Detroit, Mich. 48210
Subsidiary of Shatterproof Glass Corporation

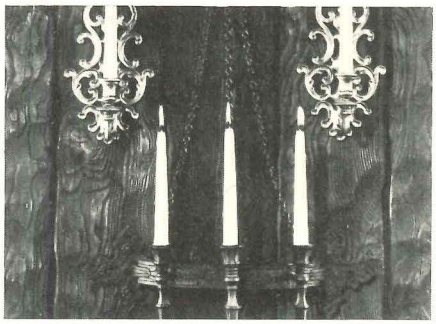
On Readers' Service Card, Circle No. 435

PRODUCTS & LITERATURE

(Continued from page 52)

Personalized Shower Enclosure

Kinkead Industries Inc. is now producing an inward folding plastic shower enclosure that can be ordered imprinted with crest, monogram, or design for use in motels and hotels. The Showerfold Panels are virtually maintenance free and carry a lifetime replacement guarantee.
Circle 110 on Readers' Service Card



Foam-Plank Paneling

The CPR Div. of the Upjohn Co. has further developed the wood simulated foam idea. Basically this is a foam plank for wall application like the earlier exposed beam of urethane foam. The effect is three dimensional with all the characteristics of real wood including knots and splinters molded into the urethane.
Circle 111 on Readers' Service Card

Pre-Engineered Steel

The American Iron and Steel Institute is currently circulating a series of brochures featuring contemporary applications of pre-engineered steel. Each folder in the series is a four-page color rendition of steel on the American scene.
Circle 112 on Readers' Service Card

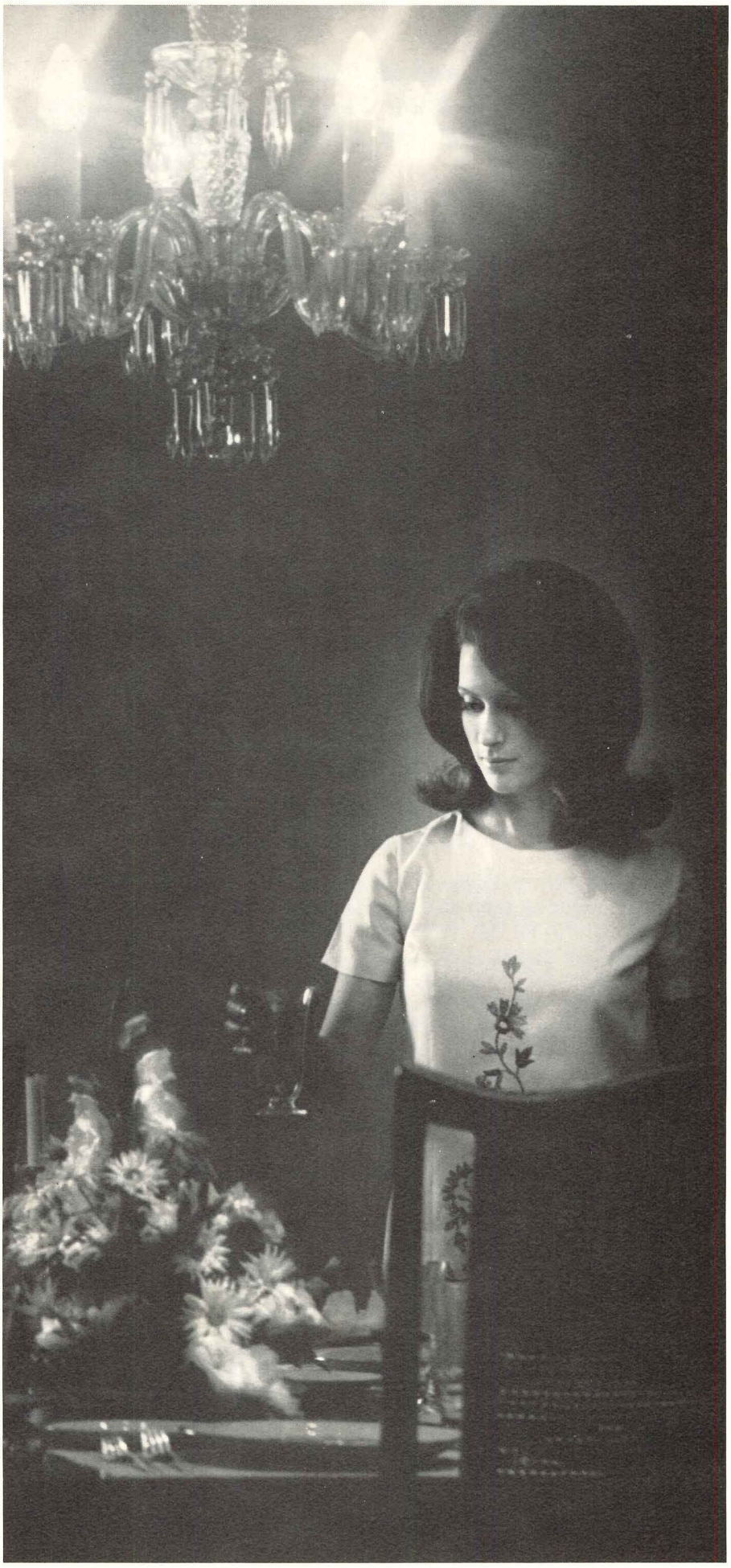
3-D Computer Display

Evans and Sutherland Computer Corp. recently developed and delivered their first Line Drawing System (LDS) model 1. The system is designed to function with existing computer facilities yet produces a better detailed, more realistic drawing.
Circle 113 on Readers' Service Card

(More products on page 62)

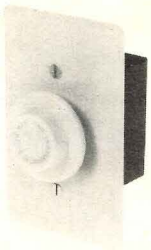
On Readers' Service Card, Circle No. 434

MOOD MAKERS.



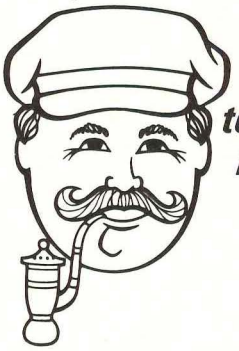
The music is Montovani-soft, the crystal sparkling, and the lights — dimmed to a candlelight glow through the dimming expertise of Hunt Electronics. With the most complete line of dimming equipment on the market today, Hunt offers U.L.-rated single gang wallbox dimmers that provide true full-wave dimming even at lowest lighting intensity.

So before you specify, consult Hunt Electronics, the world's largest manufacturer of incandescent and fluorescent dimming systems for residential and commercial applications.



HUNT ELECTRONICS
2617 Andjon, Dallas, Texas 75220

On Readers' Service Card, Circle No. 387



too stubborn to build anything but the BEST

The Stubborn Dutchman says:

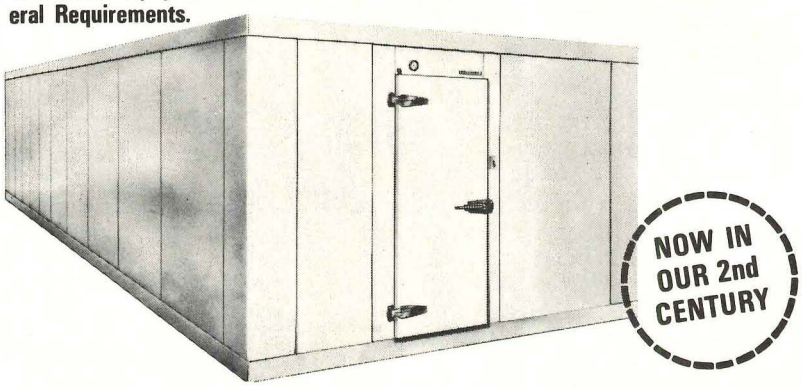
YOU WILL APPRECIATE THE WALK-IN BUILT LIKE A STRUCTURE... NOT A BOX.

Food service managers and consultants say your walk-in should last as long as your business. SCHMIDT has the only construction with a proven life of over 30 years.

Stubborn Dutch experience makes us use fine materials and time-honored methods when less would do. For example, we use steel for exposed surfaces because it is the only material that meets our standards for strength to endure resistance to accidental damage.

Specified by leading kitchen planning consultants and architects. For more information why you will benefit by equipment built by the Stubborn Dutchman circle number on the reader service card.

C. Schmidt equipment also meets NSF and the Wholesome Meat Act for Federal Requirements.



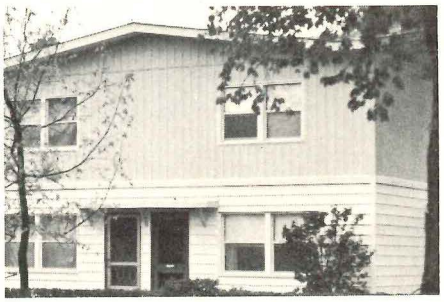
Schmidt "those Stubborn Dutchmen"

THE C. SCHMIDT COMPANY, 11424 Grooms Road, Cincinnati, Ohio 45242

On Readers' Service Card, Circle No. 342

PRODUCTS & LITERATURE

(Continued from page 60)



Solid Vinyl Siding

Mastic Corp. is introducing their line of T-Lok solid vinyl siding, said to be completely child-proof. Scratches, dirt, baseballs, and highly corrosive chemicals have no effect on the chemically inert and resilient vinyl siding. Mastic is now circulating a complete series of brochures which include specifications, characteristics, and current installations.

Circle 114 on Readers' Service Card

Seamless Marbelized Flooring

Research Laboratories Inc. is announcing the discovery of a look-like-marble substance that is applied seamlessly to floor areas. Desert Marble has been used all over the country with clients choosing from a variety of designs and colors.

Circle 115 on Readers' Service Card

Up In The Air Flooring

Weber Showcase and Fixture Co., a subsidiary of Kidde Inc., is offering two brochures on its new line of access flooring. Included are capsule descriptions of two large projects built entirely with access floors and explained by the architects who designed them.

Circle 116 on Readers' Service Card

Elevator Control System

Otis Elevator Co. is offering a brochure on its VIP 260 elevator control system. The system utilizes an analog computer to control elevator pick up and anticipate heavy traffic situations before they arise. The system is being installed in several locations to modernize existing facilities.

Circle 117 on Readers' Service Card

(More products on page 66)

Darn clever, these Chinese.

4,000-year-old building secret revealed in ancient Chinese porcelain-enamel vase

The fact that porcelain enamel as a building material is virtually indestructible was dramatically demonstrated by the discovery of this 4,000-year-old Chinese vase. Its brilliant colors and gleaming finish have not aged over the centuries.





TODAY LEADING ARCHITECTS AROUND THE WORLD ARE SPECIFYING ALLIANCEWALL PORCELAIN ENAMEL PANELS MORE AND MORE. The unusual durability of AllianceWall panels has greatly contributed to this growing popularity. After decades of tough, punishing wear, early-day AllianceWall installations still look bright and new. Consider these facts:

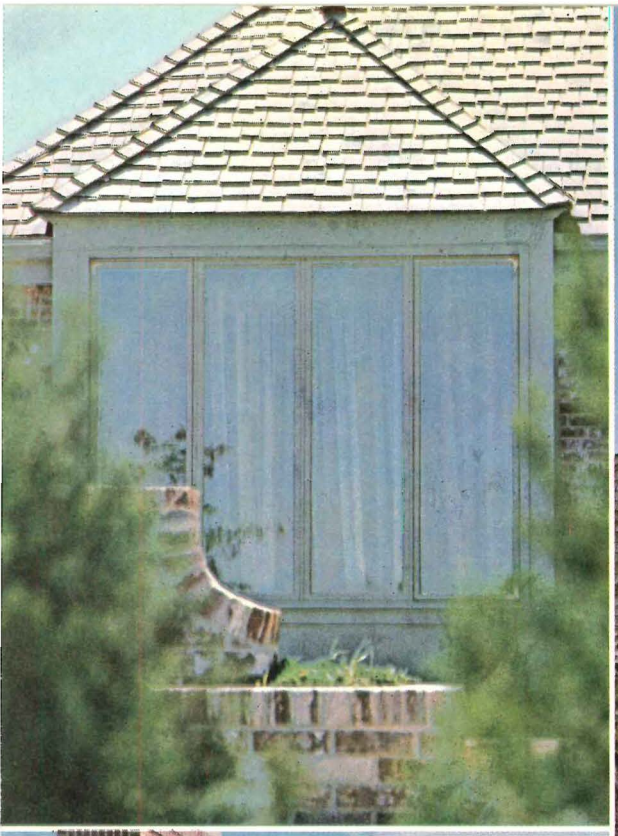
- **AllianceWall porcelain is actually fused to the steel . . . and actually becomes a part of the steel . . . not just a coating or surface treatment.**
- **AllianceWall panels are compatible with nearly any other type building material.**
- **The smooth non-porous glass surface of AllianceWall porcelain-on-steel panels will not retain dirt, grease or stains.**
- **AllianceWall panels come in 107 standard beautiful colors which never fade, corrode or appear to age.**

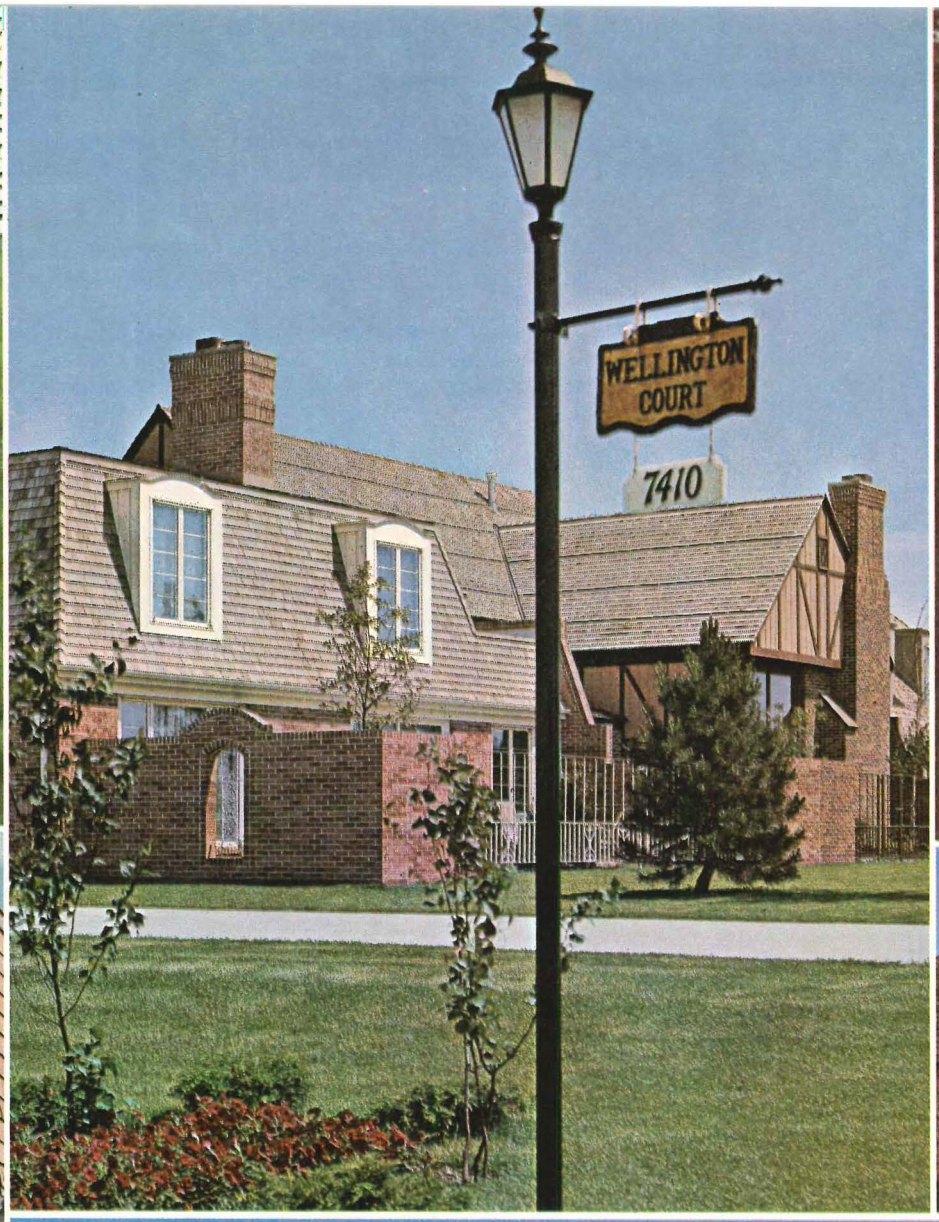
Send Today for Full Information About AllianceWall Panels in the Construction of Office Buildings • Industrial Plants • Hospitals • Schools • Apartment Buildings

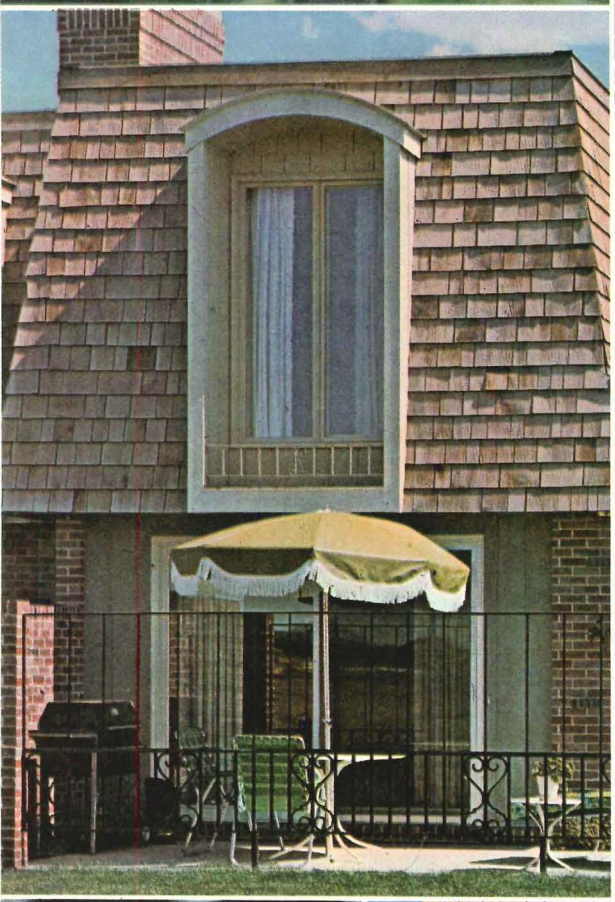
AllianceWall®

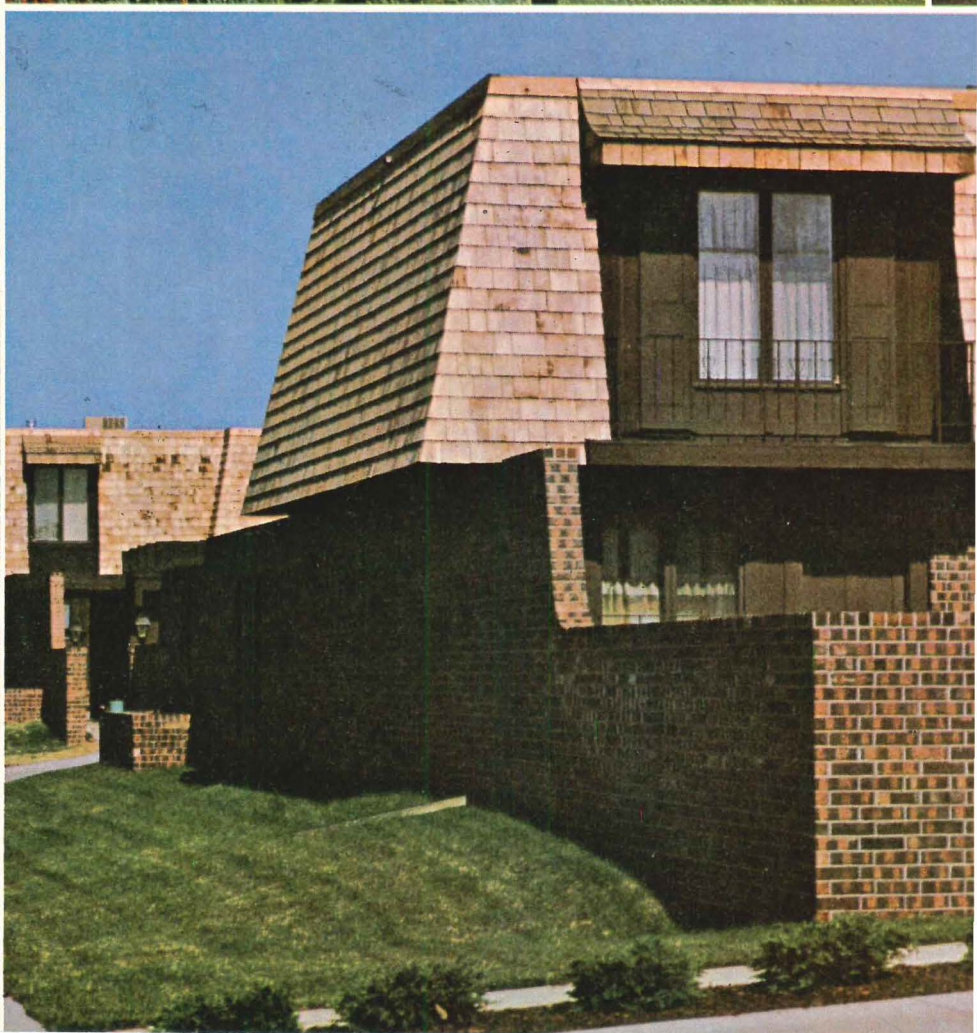
AllianceWall Corporation • Box 247 • Alliance, Ohio 44601

On Readers' Service Card, Circle No. 327

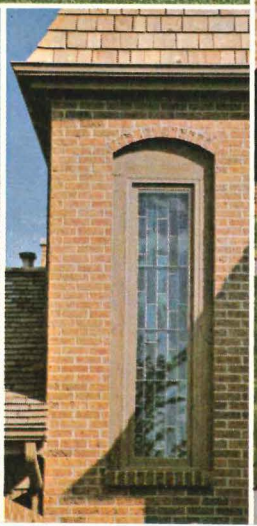



WELLINGTON
COURT
7410



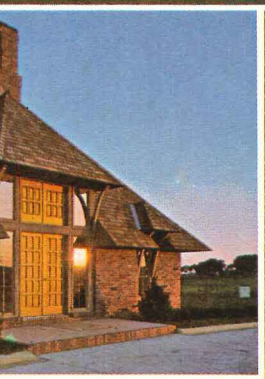








Wellington Greens, Lincoln, Nebraska. Builder-Architects: Strauss Brothers







Do window design details make a difference?

The difference between night and day.

These might have been look-alike townhouses. They're all part of the same development. Yet each unit has its own character, charm and sales appeal. Each has its own style of stock Andersen Windows.

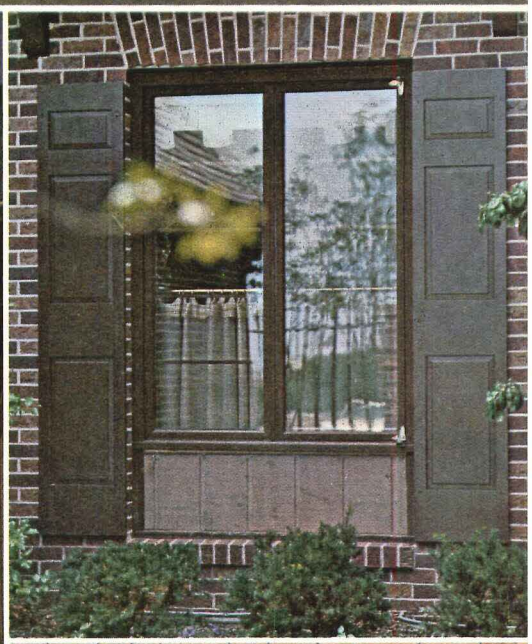
Why Andersen? They're America's most beautifully-designed wood windows. Slim. Trim. Elegant. Also they're built to last for the life of the building. Precisely detailed. Incredibly weathertight. And finally, Andersen offers thousands of weapons in the war against conformity—6 window and gliding door styles, hundreds of sizes, a variety of grilles, etc.—all factory assembled and available from local stock.

But if, as the saying goes, "One picture is worth 1000 words," we've already talked too much about the variety and sales appeal of Andersen Windows. For more *technical* information, just call your nearest Andersen Distributor. Or, consult Sweet's Architectural or Light Construction Catalog File.

Andersen Windowalls™

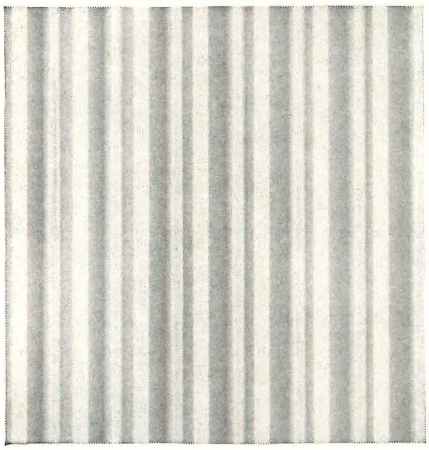
Window Beauty is Andersen

ANDERSEN CORPORATION • BAYPORT, MINNESOTA 55003





NEW!



SYMONS DEEP RIB TRAPEZOIDAL FORM LINER

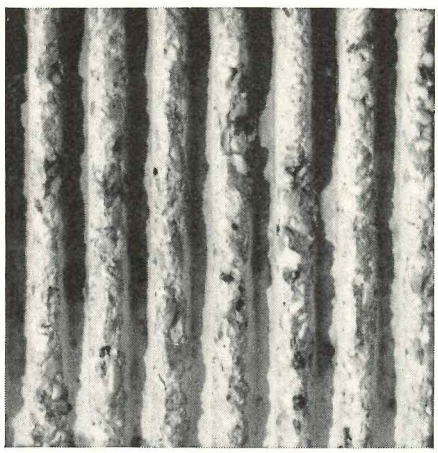


Now, deep and architecturally dramatic ribs can be easily cast into any concrete surface with this new Deep Rib Trapezoidal Liner. As the sun revolves throughout the day, distinctive shadows appear within the ribs, giving the concrete surface strong, clean lines.

The surface imparted to the concrete by the liner may be of a slightly textured finish, shown above, which is standard, or a smooth finish available on request. A rough finish, as illustrated below, may also be obtained by bush hammering or hammer blows.

Ribs are 1½″ deep by 2″ on center. The liner is made of special ⅛″ plastic material which is highly durable and reusable. Either nails or a neoprene adhesive may be used to attach the liner to the form facing.

Complete information about Deep Rib Trapezoidal Form Liner available on request.



CONCRETE FORMING EQUIPMENT
SYMONS MFG. COMPANY
158 EAST TOUHY AVE., DES PLAINES, ILL. 60018

MORE SAVINGS WITH SYMONS

On Readers' Service Card, Circle No. 410

PRODUCTS & LITERATURE

(Continued from page 62)

Western Wood Products

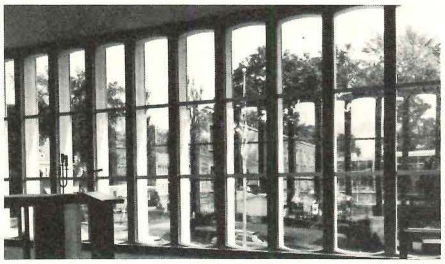
The Western Wood Products Association is currently distributing Facts, the 1968 statistical supplement to Facts for Opinion Makers, designed to provide production data, sawmill information, timber sources, etc. concerning the Western Lumber Industry.

Circle 118 on Readers' Service Card

Tubeaxial Fans

Aerovent Fan Co. is offering a 20-page bulletin featuring their complete line of tubeaxial fans. Included are fans in seventeen sizes from 12″ to 96″. Eight blade tubeaxials are also included to satisfy requirements for intermediate performance ranges up to 4″ SP.

Circle 119 on Readers' Service Card



Micro-Metallic Glass

Libbey-Owens-Ford Co. has recently installed a reduced transmission glass called Vari-Tran in the Our Lady of Good Hope church in Milwaukee. The specially treated glass can be designed to control light transmission, thereby reducing glare and heat absorption. A thin metallic layer is coated onto one surface of the glass through a vacuum treatment process.

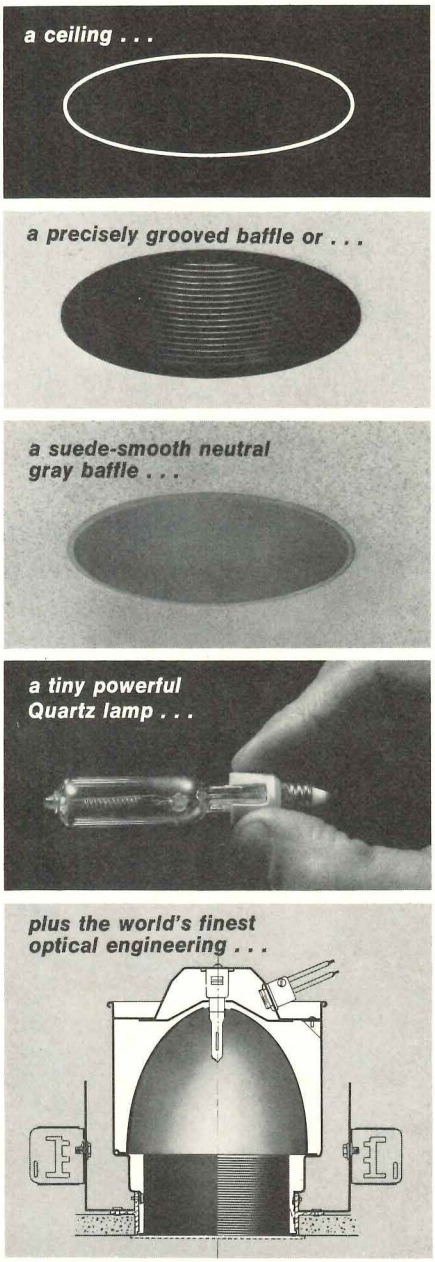
Circle 120 on Readers' Service Card

Granite Catalog

The Cold Spring Granite Co. is presently offering a 24-page catalog of its available granite. The catalog illustrates 18 different colors of granite both in close-up grain shots and typical architectural installation. Also included are specifications, anchor selections, and types of finishes.

Circle 121 on Readers' Service Card

(More products on page 73)



equals . . .

HIGH FOOTCANDLES WITH LOW BRIGHTNESS AND ECONOMY

CENTURY STRAND new 250W. Quartz Recessed Downlites — designed for wide or narrow spread distribution from medium to high ceilings.

CENTURY STRAND INC.
A COMPANY WITHIN THE RANK ORGANISATION

3 Entin Road, Clifton, N. J. 07014
5432 W. 102 St., Los Angeles, Calif. 90045
In Canada: STRAND CENTURY LIMITED
105 Davenport Rd., Toronto 5, Ontario

On Readers' Service Card, Circle No. 359



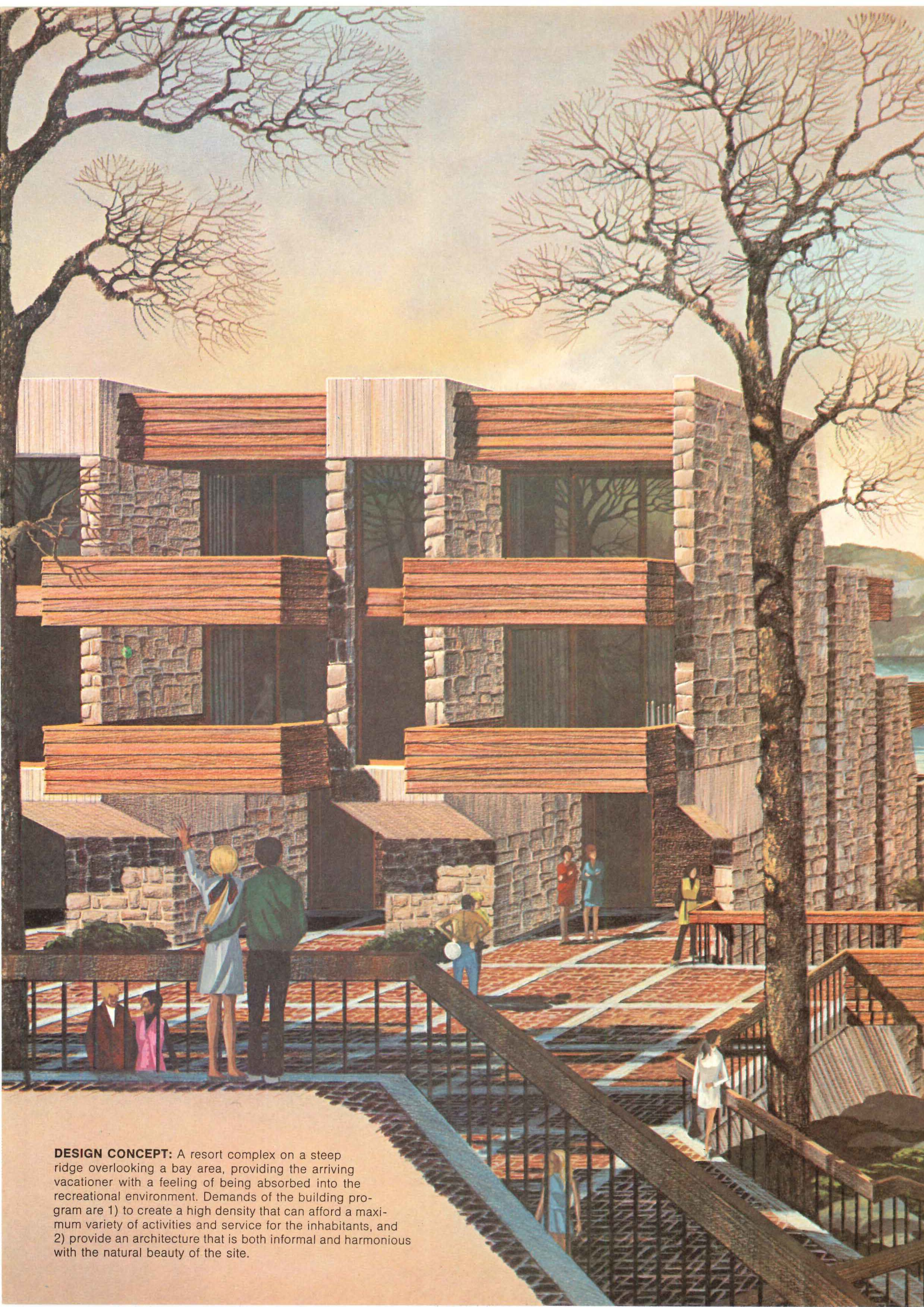
THE 5000 SERIES DESIGNED FOR SPACE SAVING

solves problems ordinary office furniture creates.
For information...

CRAMER INDUSTRIES INC.
A Subsidiary of USM Oil Company, 625 Adams Street, Kansas City, Kansas 66105, 913-621-6700

or... *Sweet's Interior Design File* Volume 3, Location F3/a

On Readers' Service Card, Circle No. 372



DESIGN CONCEPT: A resort complex on a steep ridge overlooking a bay area, providing the arriving vacationer with a feeling of being absorbed into the recreational environment. Demands of the building program are 1) to create a high density that can afford a maximum variety of activities and service for the inhabitants, and 2) provide an architecture that is both informal and harmonious with the natural beauty of the site.

INNOVATION IN DESIGN. One of a series created for DAP Architectural Sealants. Design and rendering by Richard P. Howard Associates, Architectural Illustrators, Sylvania, Ohio. Harold R. Roe, A.I.A.

utility

DAP Butyl-Flex® gives all the protection of 20-year sealants in caulking joints where movement is minimal. This accounts for nine out of ten cases where a seal is desired against sun, snow and storm. No other caulk comes close to this combination of long-term dependability and widespread utility. But then no other caulk has the high butyl content of Butyl-Flex. That's why no other caulk matches its outstanding elongation and tenacious adhesion between similar and dissimilar construction materials. For catalog describing Butyl-Flex and other DAP Architectural Sealants, please write: DAP Inc., General Offices: Dayton, Ohio 45401. Subsidiary of *Plough, Inc.*

On Readers' Service Card, Circle No. 332

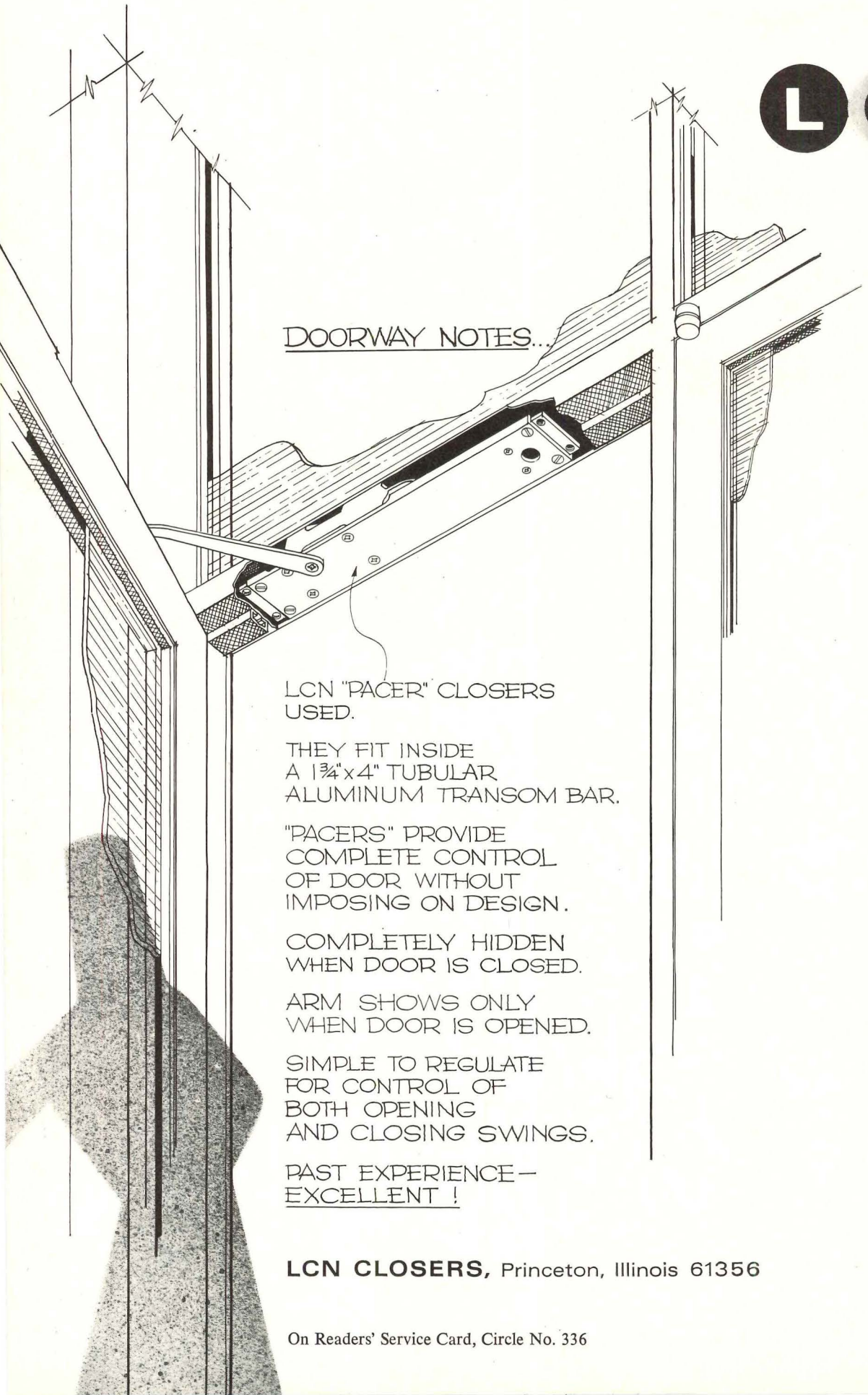


DAP®
ARCHITECTURAL SEALANTS

Also available in Canada

Brevard Junior College, Cocoa Beach, Florida.
W. R. Gomon & Associates,
Daytona Beach, Florida, Architects.

LCN



DOORWAY NOTES...

LCN "PACER" CLOSERS USED.

THEY FIT INSIDE A 1¾"x4" TUBULAR ALUMINUM TRANSOM BAR.

"PACERS" PROVIDE COMPLETE CONTROL OF DOOR WITHOUT IMPOSING ON DESIGN.

COMPLETELY HIDDEN WHEN DOOR IS CLOSED.

ARM SHOWS ONLY WHEN DOOR IS OPENED.

SIMPLE TO REGULATE FOR CONTROL OF BOTH OPENING AND CLOSING SWINGS.

PAST EXPERIENCE— EXCELLENT !

LCN CLOSERS, Princeton, Illinois 61356

On Readers' Service Card, Circle No. 336





Blue Cross-Blue Shield Office Building / Richmond, Virginia / Architects: Ballou and Justice / General Contractor: Doyle and Russell

Inside and out . . . Mo-Sai.

The second Blue Cross-Blue Shield office building in Richmond to utilize Mo-Sai sparkles with an exposed white quartz surface both inside and out. Patterns created by windows deeply recessed in the Mo-Sai units change with the moods of the sun. Mo-Sai stairs, plaza, planter, pool surround, and fifty-foot-high cross complement the building exterior. On the interior, Mo-Sai column covers, pool surround and fascia impart a restful elegance.

The versatility of Mo-Sai, manufactured under factory-controlled, quality-controlled conditions, allows the architect to move with freedom in any direction of design.

Mo-Sai®
PRECAST, PRESTRESSED CONCRETE
WITH EXPOSED AGGREGATE



For more information, write or call any of the Institute members listed below:

MO-SAI INSTITUTE, INC.

110 Social Hall Ave.,
Salt Lake City, Utah 84111
Members, Producers' Council

ALLIED BUILDING SYSTEM, INC.
260 Tolland Turnpike
Manchester, Connecticut 06040
A wholly owned subsidiary of
PLASTICRETE CORPORATION
1883 Dixwell Avenue
Hamden, Connecticut 06514

BADGER CONCRETE COMPANY
P. O. Box 1068
437 Marion Road
Oshkosh, Wisconsin 54902

BEER PRECAST CONCRETE LIMITED
110 Manville Road
Scarborough, Ontario, Canada

CAMBRIDGE CEMENT STONE COMPANY
P. O. Box 41
156 Lincoln Street
Allston, Massachusetts 02134

ECONOMY CAST STONE COMPANY
P. O. Box 3-P
100 E. Franklin Street
Richmond, Virginia 23207

FORMIGLI CORPORATION
1700 Market Street
Philadelphia, Pennsylvania 19103
81 East Foothill Boulevard
Upland, California 91786

GOODSTONE MANUFACTURING CO., INC.
470 Hollenbeck Street
Rochester, New York 14621

HAMILTON CONCRETE PRODUCTS COMPANY
1401 East 39th Street
Chattanooga, Tennessee 37407

HARTER CONCRETE PRODUCTS, INC.
1628 West Main Street
Oklahoma City, Oklahoma 73106

JACKSON STONE COMPANY, INC.
P. O. Box 4355
Fondren Station
Jackson, Mississippi 39216

OLYMPIAN STONE COMPANY, INC.
P. O. Box 685
192nd N.E. and Union Hill Road
Redmond, Washington 98052

OOLITE INDUSTRIES, INC.
P. O. Box 877, Ojus Br.
18851 N.E. 29th Avenue
Miami, Florida 33163

THE GEO. RACKLE & SONS CO.
Newburg Station
Cleveland, Ohio 44105

READY-TO-POUR CONCRETE COMPANY
P. O. Box 5025
Boise, Idaho 83702

SEKIGAHARA STONE CO., LTD.
2-11-1 Takara-Cho, Chuo-Ku
Tokyo, Japan

SOUTHERN CAST STONE COMPANY, INC.
P. O. Box 1669
Sutherland Avenue & Concord Street
Knoxville, Tennessee 37901

TERRACON CORPORATION
1906 West Winton Avenue
Hayward, California 94545

TEXAS INDUSTRIES, INC.
P. O. Box 400
Arlington, Texas 76010
P. O. Box 2672
Houston, Texas 77001

WILSON CONCRETE COMPANY
P. O. Box 56
Red Oak, Iowa 51566
P. O. Box 7208
South Omaha Station
Highway 75 Avery Road
Omaha, Nebraska 68107

On Readers' Service Card, Circle No. 338

PRODUCTS & LITERATURE

(Continued from page 66)



Pre-Finished Steel Doors

Fenestra is offering a complete line of prefinished steel doors available in a broad spectrum of decorator colors. Enamels are applied at the factory and are said to be resistant to staining, fading, and abrasion.
Circle 122 on Readers' Service Card

Creative Architectural Lighting

BMD&R Lighting, a subsidiary of Sterner Lighting Inc., is offering a 24-page catalog of their lighting products using contemporary applications to illustrate various phases of lighting design. Included are churches, swimming pools and offices.
Circle 123 on Readers' Service Card

Factory Applied Surfaces

Dow Corning is now distributing a new booklet on its silicone based coatings using existing structures to emphasize the point that factory applied silicone coverings outlast conventional methods of surface treatment. The silicone surfaces showed no color change and almost no wear over a six-year period.
Circle 124 on Readers' Service Card

Card Control Entry

Revenue Control Systems, a division of Litton Industries, is marketing an electronic access control system to security conscious clients. Installations could include banks, computer control centers, hospitals, the military, and many other security installations. The system also includes a printer that records the time and date of entry.
Circle 125 on Readers' Service Card

COMMUNICATE WITH ALTEC

Only Altec manufactures two-way intercoms, one-way pocket pagers, loudspeakers, NOALA™ automatic volume adjustment, power amps, mikes, paging & sound systems, etc. to fill every internal communication need you have. But that's only the hardware. We also have the experience and the know-how to economically solve problems today, to allow for expansion and growth tomorrow and to produce overall long-range savings for your company. And that goes for light and heavy industry as well as service companies. For a free Total Communication System brochure, see your Yellow Pages for the name of your nearest authorized Altec Sound Engineering Contractor, or write to: Altec Lansing, 1515 South Manchester Avenue, Anaheim, California 92803. Attn: PA-4

Stop searching for employees. Cover backyards, frontyards, courtyards with an Altec Paging System—simply pass the word.

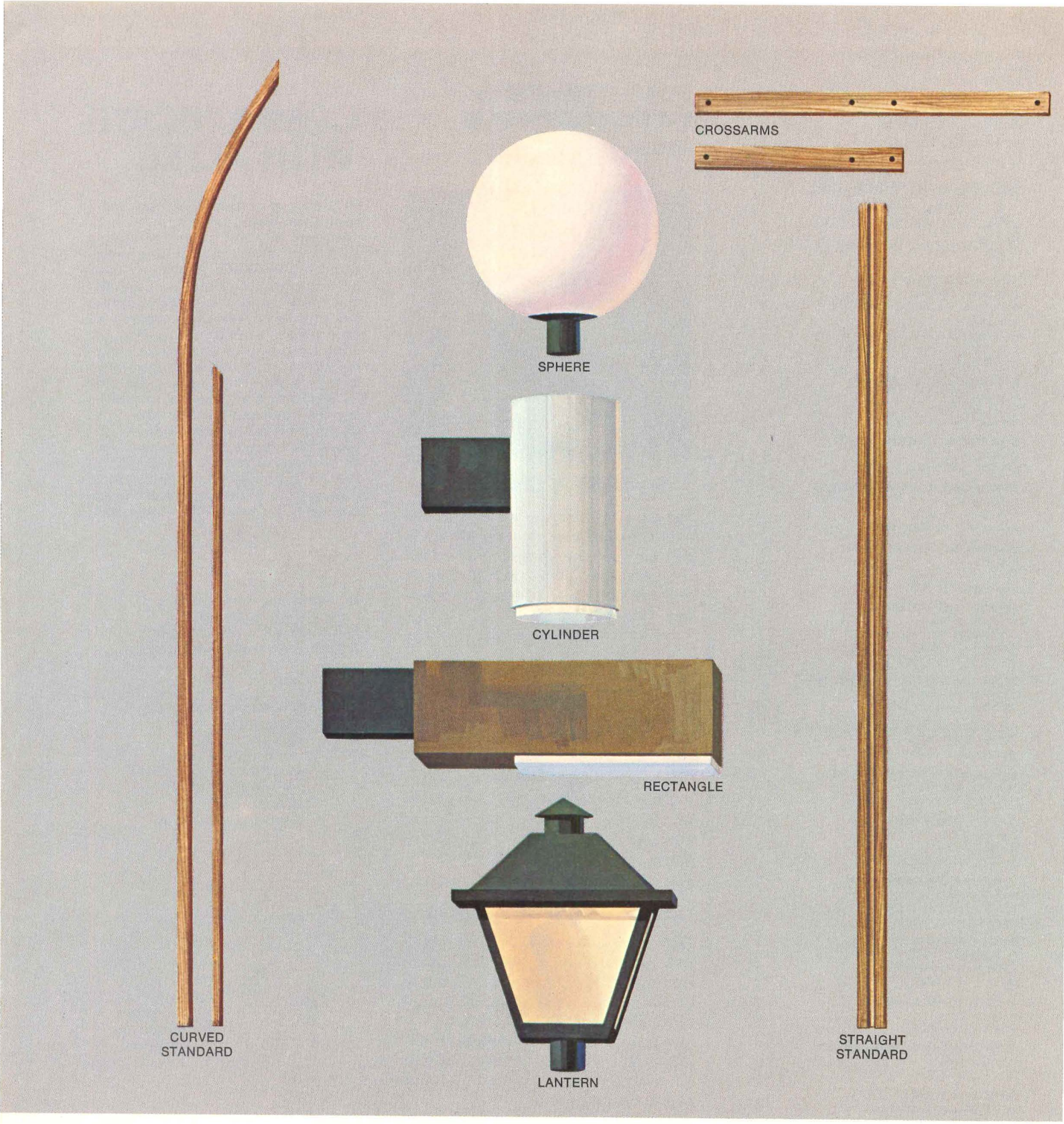
Increase office efficiency with an Altec Intercom System. Your people are just pushbuttons away, and your phones are free to handle important outside calls.

Save steps by using Altec Pocket Pagers. Signal and talk to employees up to a mile away.



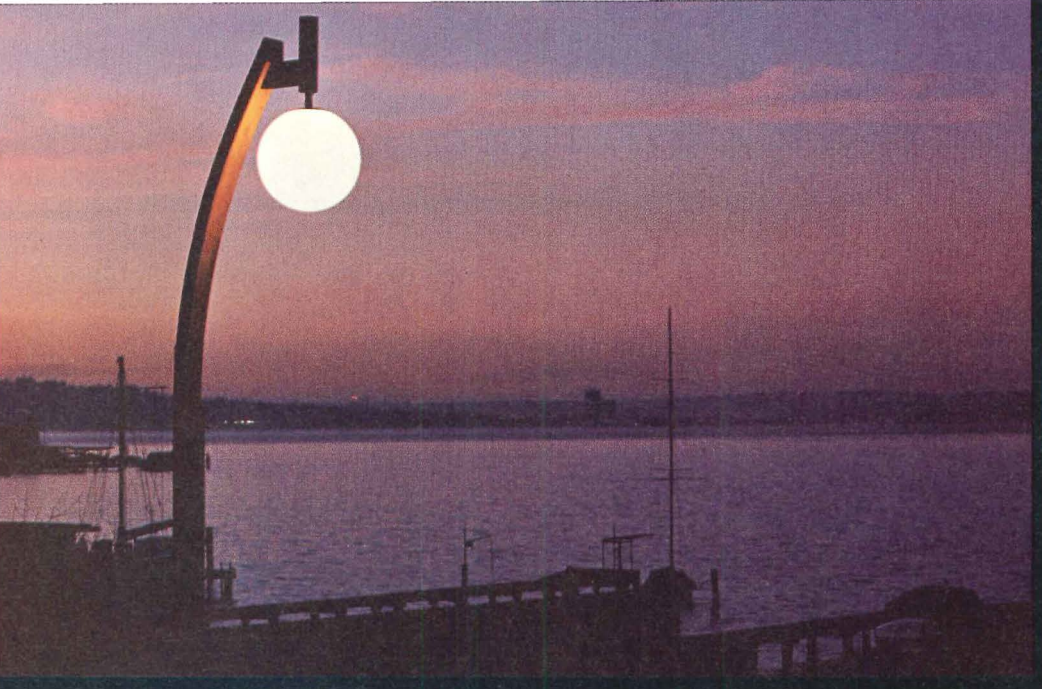
A QUALITY COMPANY OF LTV LING ALTEC, INC.

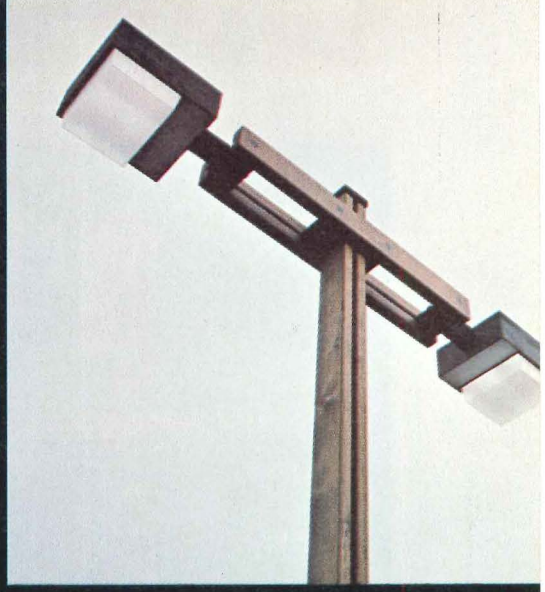
On Readers' Service Card, Circle No. 436



Weyerhaeuser Woodscape™ Lighting. We designed the parts.

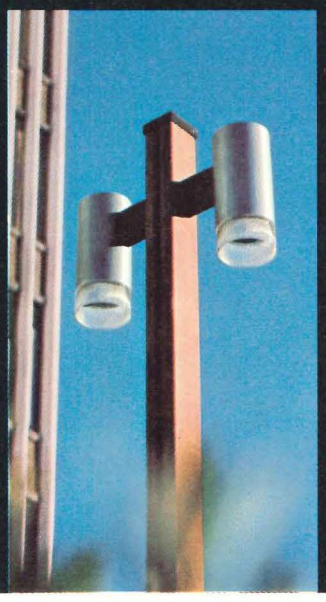
On Readers' Service Card, Circle No. 403

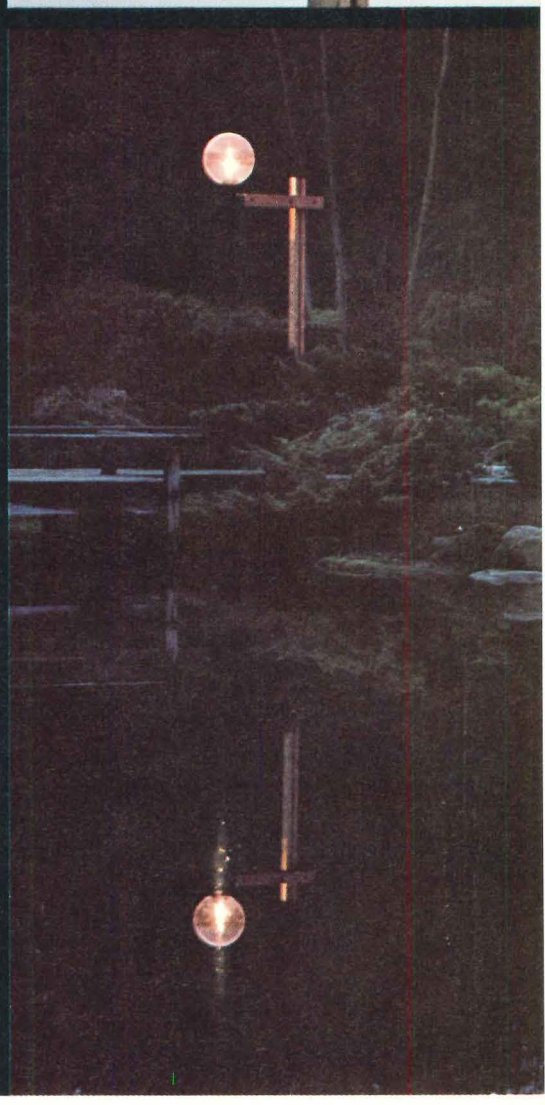












Now you design the system.

New Weyerhaeuser Woodscape Lighting is a systems approach to illumination with over 500 combinations for residential areas, campuses, malls and highways.

There are four luminaire styles and two shapes of laminated wood standards: the curved and the straight, from 8 to 30 feet. Plus one- and two-way crossarms.

To install you simply dig a hole and drop in the standard, so installation costs less than steel or concrete. The Weyerhaeuser standards are treated for long life. No maintenance required. Ever. And you can stain the standards or leave them natural.

Above all, Woodscape Lighting relates with its surroundings in a non-striving way. It's an environmental product of Weyerhaeuser Company in cooperation with mcPhilben Lighting, a division of Emerson Electric Company.

We designed the parts. Now it's up to you.

Send the coupon for full details.

To: Weyerhaeuser Company, Box B-6897
Tacoma, Washington 98401

☐ Please send me your brochure on Weyerhaeuser Woodscape Lighting.

☐ I'd like to talk to a representative.

Name _____

Firm _____

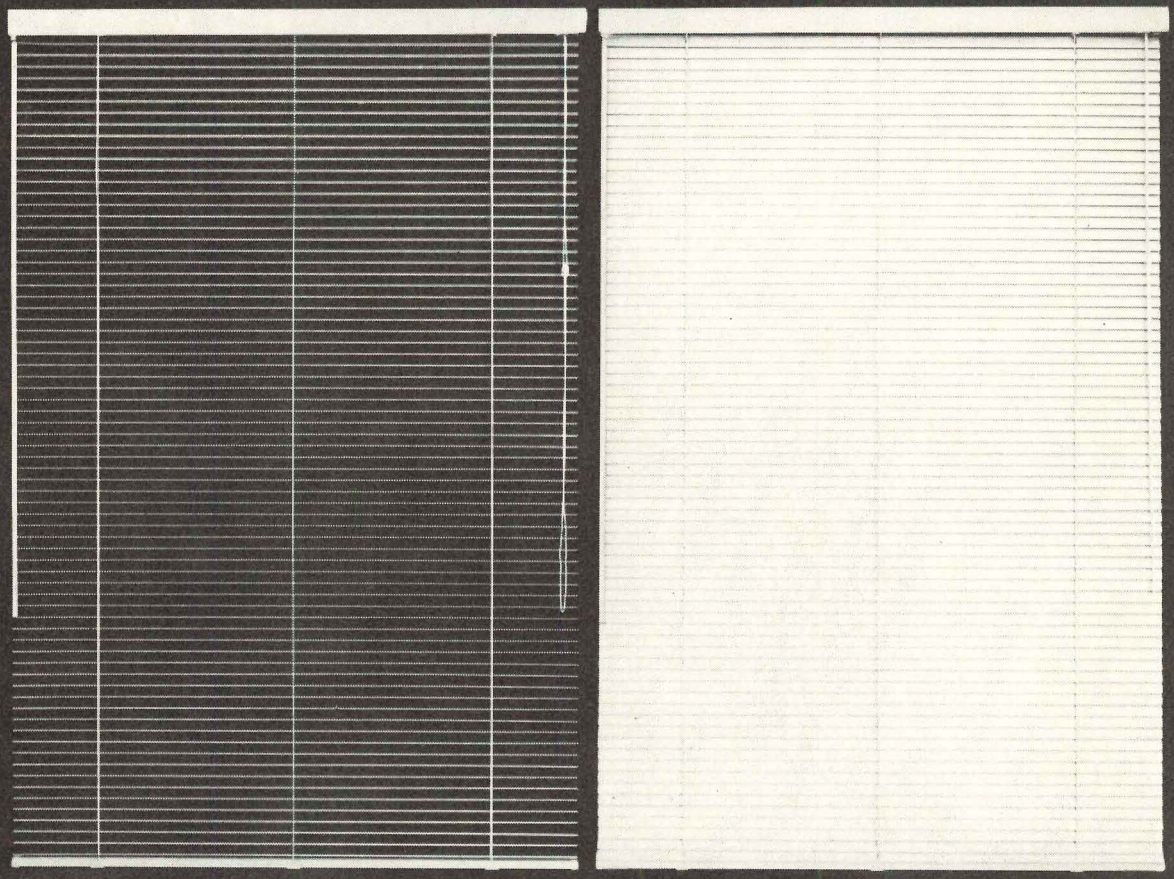
Address _____

City _____

State _____ Zip _____

Weyerhaeuser

The Venette.®



An open and shut case.

A beautiful 1″ blind doesn't have to be delicate. The Flexalum Venette is proving it. In leading buildings all over America.

Spring tempered louvers, rigid torque-tube head, polyester cable ladders make the Venette as tough as any conventional blind.

But a lot better looking.

For further information, write
Alcan Aluminum Corporation, Building Products Division,
100 Erieview Plaza, Cleveland, Ohio 44114

ALCAN ALUMINUM

ALCAN

Cataloged in Sweets, Spec-Data and IDAC



Ponding causes a whole deluge of problems. Zonolite roof deck systems turn them off.

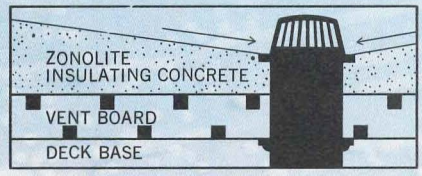
Zonolite® has roof decks for everything. For the slope-to-drains. For hurricanes. For protection against fire. And for insulation.

Roof deck systems certified by Grace-Zonolite. Available everywhere in the U.S. and Canada. Installed by approved applicators each and every month of the year.

Just talk to your local Zonolite representative. He'll be pleased to consult with you and come up with a recommendation that will satisfy all your design requirements.

Want to correct a roof deck problem. Or better yet, prevent one in the first place?

Say the word!



ZONOLITE

W. R. GRACE & CO.
62 Whittemore Avenue
Cambridge, Mass. 02140

GRACE



Just say Grace.

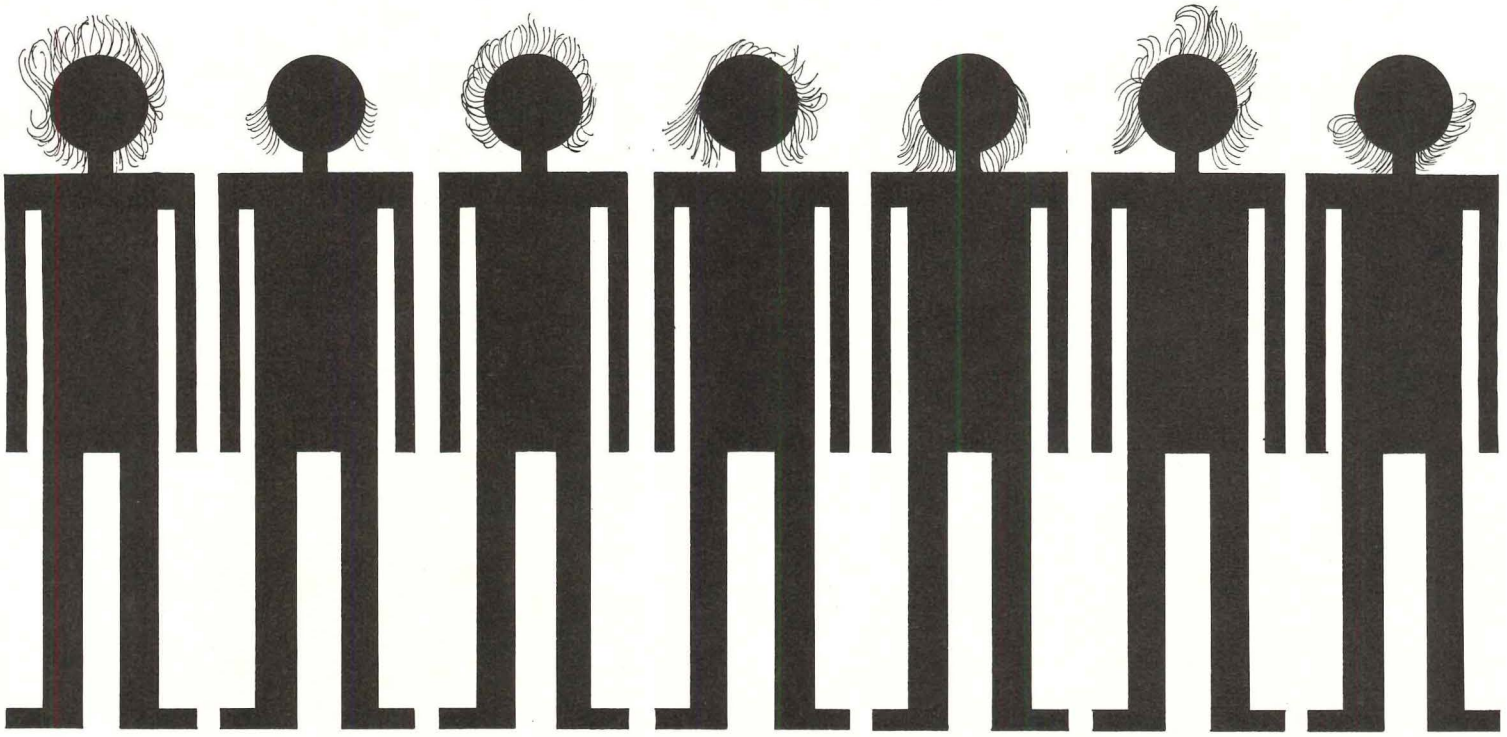
On Readers' Service Card, Circle No. 351

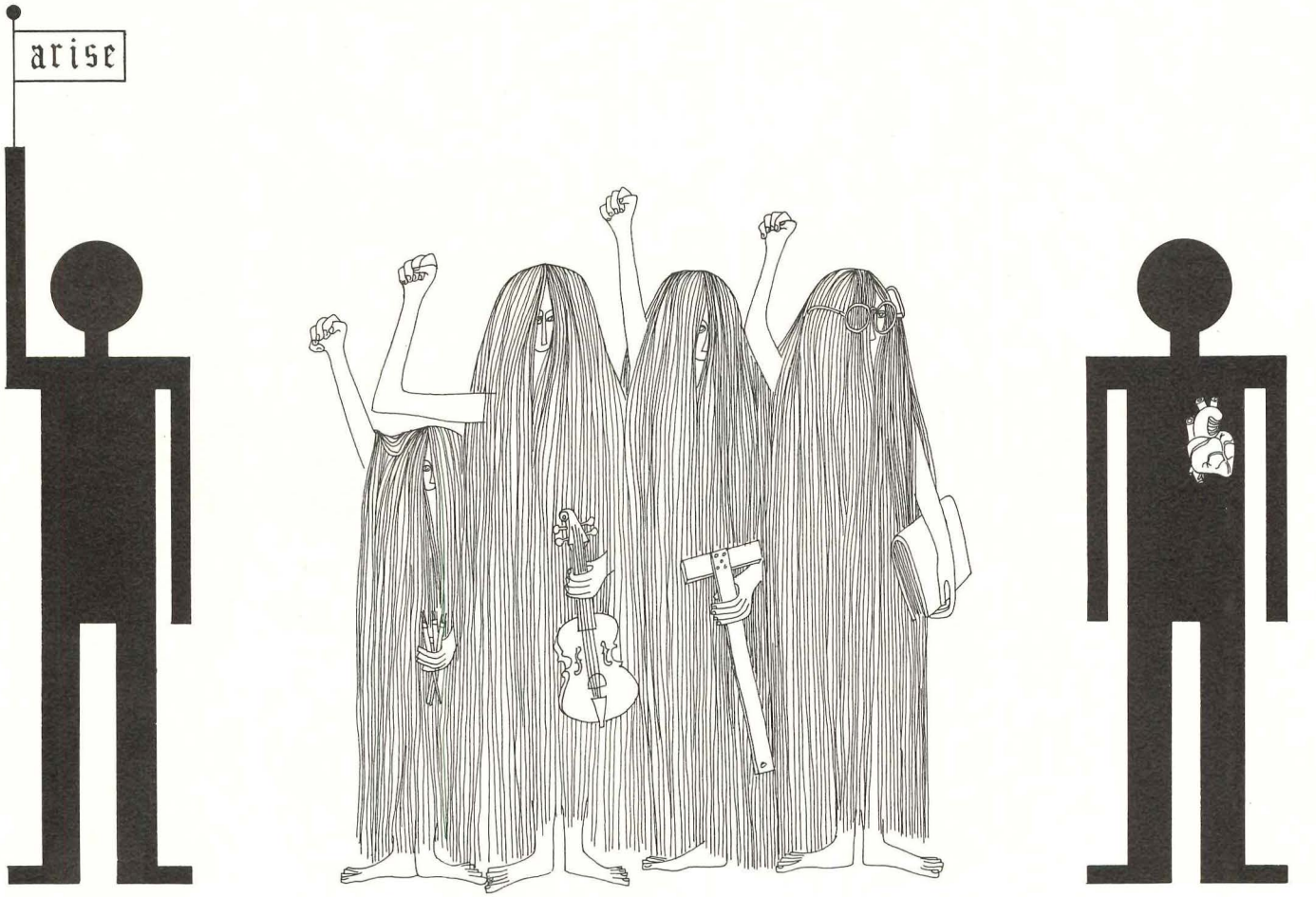


The arts have always been something special in America, to be patronized by the cultivated few, tolerated and largely ignored by the many. They have been too fine for ordinary comprehension but like apple pie and motherhood, above suspicion. They are no longer that.

The arts have become excitement, communication, comment, criticism, even revolution. Theater, television, and movie criticism is the most incisive and creative criticism of our time. The art of architecture is moving into the rough and tumble cockpit of social, economic, and political process; of advocacy, conservation, and pollution. As architecture leaves the polite realm of art appreciation, it enters the area of survival. As the arts become suspicious commentators and critics of our way of life, and even suggest alternatives, they have become popular and indispensable.

President Nixon, in asking Congress to extend the legislation creating the National Foundation of the Arts and Humanities and proposing an approval of 40 million dollars in new funds, has done a brave and commendable thing. Brave, for the arts have been,





and will continue to be, critical of many of the things Mr. Nixon stands for.

Giving support to the arts and humanities when the major thrust of our economy is toward technological research in the art of war, and our humanity is overshadowed by the inhumanity of Vietnam is not a "meaningless gesture." The quality of life in America must be enriched as much by today's involved art as the spark of life for some must be nourished by food coupons. Culture is no longer a luxury. It is essential for a people who must express themselves or explode.

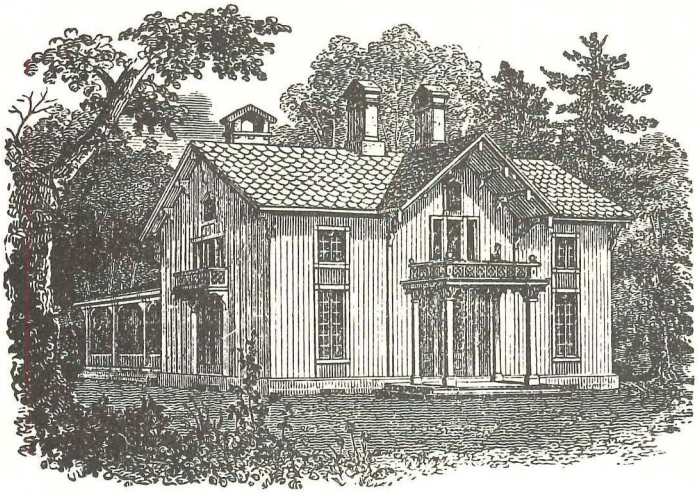
The fact that the amount of money allocated for the arts is pitifully inadequate by comparison to that allocated for anti-life priorities is not as significant as that it is appropriated at all. Of course it is too little — nothing less than an inversion of art and war priorities would be adequate — but it is not too late.

From the beginning of our history until very recently, art has been a polite aside, largely unconnected to our way of life. Early visitors to this country returned to their homelands admonishing future tourists not to look for culture in this frontier country, while those cultivated natives who did exist turned away from the rich mine of vernacular building and technological ingenuity developing here. As a result, the humanizing elements that would, in the words of Mr. Nixon, "redress the balance between the sciences and the humanities," have been consistently withheld.

This is changing. We do not now think of the arts as diffused by talented carriers. To have meaning, we know they must germinate in the body of our people. The arts are becoming vital to us as we come to the realization that in our overproductive, product-oriented society, life itself and not artistic artifacts is art.

The fact that perhaps the most important contribution to this annual housing issue is not a house, nor even architectural technology, but an architect's idea — a process to adjust and humanize industrial processes that could result in a solution to the problem of mass housing — is an incisive indication of the universal importance and the new vitality of art.

Forrest Wilson



House from A. J. Downing's "Cottage Residences," 1852.



Frank Lloyd Wright's Baker house, Wilmette, Illinois, 1909.

A Spectrum

Housing presents a vast and varied market — from handcrafted artifacts, such as those by A. J. Downing, H. H. Richardson, and Frank Lloyd Wright on these pages, to massive industry-produced projects, such as those proposals in "Operation Breakthrough" later in this issue.

Housing is too complex to be solved either by houses or by housing technology. A number of times in our history we have devised excellent industrial housing systems, yet the housing problem is worse today than ever before.

A century ago we were world leaders in prefabricated housing. This is documented by John A. Kouwenhoven in his excellent book, "The Arts In Modern American Civilization" in which he describes how Colonel Lyman Bridges of Chicago advertised and sold entire prefabricated towns including houses, churches, schools, stores, and meeting halls in 1872. In 1820, a prefabricated church was sailed around the Horn and assembled in Honolulu.

From the very beginning of our history, Americans have invented new tools and improved old ones. The redesign of the hammer, the spade, and the pitchfork aroused admiration in the great World's Fairs of 19th-Century Europe. We devised new machines to pick cotton, spin, and sew; to slaughter hogs, saw timber, and cut nails. The early frontiers of America — the prairies, the Far West, Alaska — were dotted with precut houses as an industrial housing technology sprang naturally from a climate in which a ready market mothered invention.

Yet the architects never seemed to come to terms with this profit-fired technology. Instead of helping to humanize the brute muscle of industrialization, cultivated architects allied themselves with skilled carpenters to conspire against it. Prefabricated

"The Rise of an American Architecture"

By Edgar Kaufmann, Jr.

Edgar Kaufmann Jr., author and lecturer, is Adjunct Professor of Architecture at Columbia University and director of the exhibition about which he writes here.

An American ideal of the small family home found expression in the mid-nineteenth-century writings of Andrew Jackson Downing. A line can be traced from these, through the shingle homes of H. H. Richardson in the 1880s, to Frank Lloyd Wright's Prairie Houses of the 1900s. This development of American culture is presented in a major section of the exhibition prepared for The Metropolitan Museum of Art, "The Rise of an American Architecture," which opens on May 1 and runs through October of this year.

The "cottages, farm houses, and villas" in Downing's books were derived from picturesque European types, but much transformed in plan, elevation, and materials. The new American homes were carefully proportioned and conveniently arranged; in a modest home, as a rule, a wooden frame was neatly wrapped in vertical boards and battens. ". . . such cottages in this country are occupied, not by tenants, dependents or serfs, as in many parts of Europe, but by industrious and intelligent mechanics and working men, the bone and sinew of the land. . . ."

No work of this kind survives exactly as depicted in Downing's illustrations, but a remarkable group of four houses stands near Pittsburgh, Pennsylvania, built in accord with Downing's recommendations in the very year of his tragic death, 1852. The homes belonged to a cooperative formed by city businessmen who wanted to raise their families in healthy surroundings, with the cultivation of fresh foods and close supervision over the children's schooling. Evergreen Hamlet was distinctively American in concept and in forms; such references to European precedent as can be found are respectful but incidental.

Thirty years later H. H. Richardson began to build



H. H. Richardson's sketch of the house of Rev. Percy Browne at Marion, Massachusetts, 1881-2. Courtesy Harvard College Library.

of Housing

housing was derided by designers and craftsmen who, at every opportunity, disguised honest, practical outlines with moulded trimmings, Swiss Chalet, Gothic, or Georgian cultural motifs.

Today, when architects turn to the problem of mass housing, they find that, no matter how ingenious their technical discoveries, the eventual housing solution eludes them. To achieve success in the housing market comparable to that achieved by Colonel Bridges, we must devise a process that will infuse the economy, at all levels, with incentives to trigger small, intermediate, and big business into competitive action.

In this issue of P/A, we present a broad spectrum of the housing industry. Beginning with introductory comments by Edgar Kaufmann Jr. about the coming exposition at the Metropolitan Museum of Art, which features a century of architect-designed small houses, we describe the individual house as a work of art. We evaluate government involvement in industrialized housing, featuring today's Operation Breakthrough, as well as a forgotten "breakthrough" of only thirty years ago.

For the future, we present a view of a process to generate industrialized housing, one that is calculated to revive our historic problem-solving ingenuity. It recognizes that a ready market is more the mother of invention than necessity and describes a process which fuses automative methodology with housing technology. But, more important, it takes into consideration participation at all levels; from the corner service station to General Motors, from the design potential of the under-five-man architectural office to the giant A and E firms. In short, it puts the housing problem in the market place — where everybody gets a piece of the action.

---

his famous shingle-covered houses in New England. These, too, show foreign forms skillfully absorbed into provisions for American family needs. One of the least known of these houses is the smallest (since enlarged) built for the Rev. Percy Browne at Marion, Massachusetts. Mrs. van Rensselaer wrote of it ". . . the planning gives an unexpected amount of comfort and air of space. . . . Outside the only touch of ornament is given by the varied shaping of the shingles, and inside, pleasant tints alone relieve the plainness of the woodwork . . . no one could have more carefully studied a small house like this, the cost of which, exclusive of foundations, barely exceeded twenty-five hundred dollars." Richardson's own attitude is reflected in this quotation: "The architect acts on his building but his building reacts on him — helps to build itself."

After another lapse of thirty years Frank Lloyd Wright had perfected his Prairie House style in some sixty examples, explicit in timber frames, stucco or board exteriors, earthy colorings, and ingenious details for heating and ventilating. These four characteristics had been emphasized by A. J. Downing half a century earlier. Wright, as Sullivan's adjutant, learned about hot-water perimeter heat, newly developed for the early skyscrapers. He used it to make his houses "more completely articulated with light and air on several sides. . . . The walls may be opened with a series of windows to the outer air, the flowers and trees, the prospect, and one may live as comfortably as formerly, less shut in."

Wright's ideas are represented in the exhibition by a closely related group of four homes for modest living designed and built from 1908 to 1916, with cross-axial plans and two-story living rooms. Wright took Downing's approach based on human convenience, common sense, and respect for the economy of middle-class life — and carried it forward, with the help of sophisticated techniques, into a thoroughly original, creative architecture.

With the tradition established by Downing, Richardson, and Wright, the small home for the American family entered the twentieth century prepared for stringent demands. Has this tradition been well used in our times?



THE RIGHT ANGLE FOR STEEL

The planning and design of an architect's own residence is one of his most engaging challenges. For his own house in Ypsilanti, Michigan, Architect Denis Charles Schmiedeke designed almost everything — the house and detached garage, the landscaping, the interior as well as much of the furniture, and then built much of it himself. "I cannot deny that the whole has an oriental feeling about it, however unintentional it was," says Schmiedeke. "The concept and premises from which the whole complex was ordered, disciplined, and built, could not but produce the result that it did."

Located on a wooded site that slopes slightly to the north, the house and detached garage has a linearity and squareness that is nearly overpowering; indeed, the only circular component in the house — a spiral staircase — is made of straight elements that are rotated around an axis and, at that, it floats in a square stairwell.

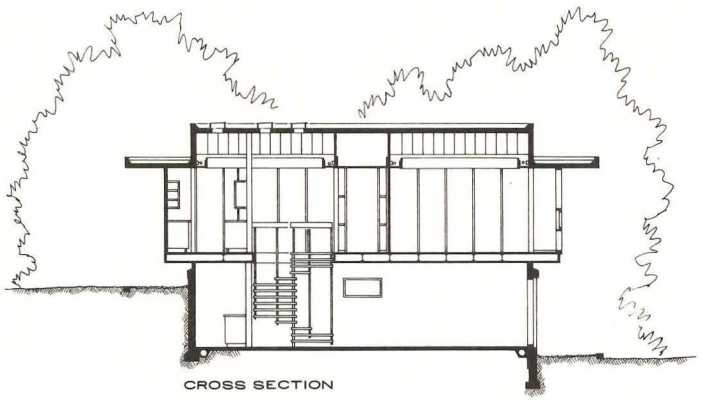
The house is divided into two levels to separate "inner-directed" from "outer-directed" activities. The lower level, which is inward-looking by virtue of



its being cut into the hillside and open only at the back, or north side, where the grade slopes down, contains enclosed spaces for sleeping, television, sewing, laundry, and a darkroom–laboratory for Schmiedeke's architectural work and for his wife's art education activities.

"Outer-directed" activities, those primarily concerned with entertaining and daytime functions, are housed in the upper level. By contrast, the upper level is more internally open and free-flowing. Largely sheathed in glass, it contains a living room, guest bedroom, dining room and a "U"-shaped kitchen that surrounds three sides of the stairwell. This level is divided into four quadrangles (each containing a room) that further heightens the linearity. The quadrangles are expressed by different ceiling heights — traffic areas around the quadrangles have 8-ft ceilings, while ceilings above activity areas are recessed to 11 ft 4 in.

The construction of the house emerges as one of its distinctive features. First designed to be built by conventional wood-framing methods, Schmiedeke chose steel as the basic frame because of its inherent



strength to resist anticipated movement due to snow and wind loading. Also, steel accommodated the double cantilevered floor and roof systems over the regressed, or negative corners of the house and garage with less difficulty than timber construction.

A light-gage, welded steel frame provides the primary structure. Set into the frame are prefabricated



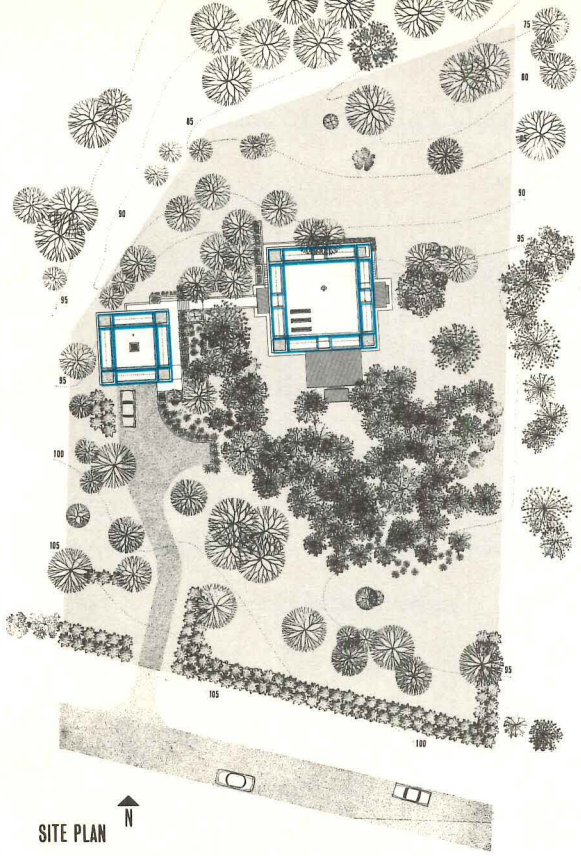
Interior furnishings were selected and designed to reinforce the colors and geometry of the architecture. Tables, designed and built by architect Schmiedeke, complement the expression of the construction and seating, and are built of heavy walnut components with thick tops of walnut parquet flooring.

plywood-faced panels, 32 in. wide, containing 4-in. thick expanded polystyrene (foam) cores. These sandwich panels serve as the secondary structure and the exterior envelope of walls and roof. The panels are heavily coated (troweled smooth) with a specially developed mixture of light brown filter sand, pulverized glass, and an acrylic resin to provide a permanent weathering surface. Edge rails on the panels are 1″ x 4″ Philippine mahogany wood strips, that serve as fastening surfaces. Steel "H" beams are fabricated from three double channel steel studs. Studs, 4″ x 4″, are used as the legs of the beams, joined by a 2½ in. stud welded between them as a crossbar.

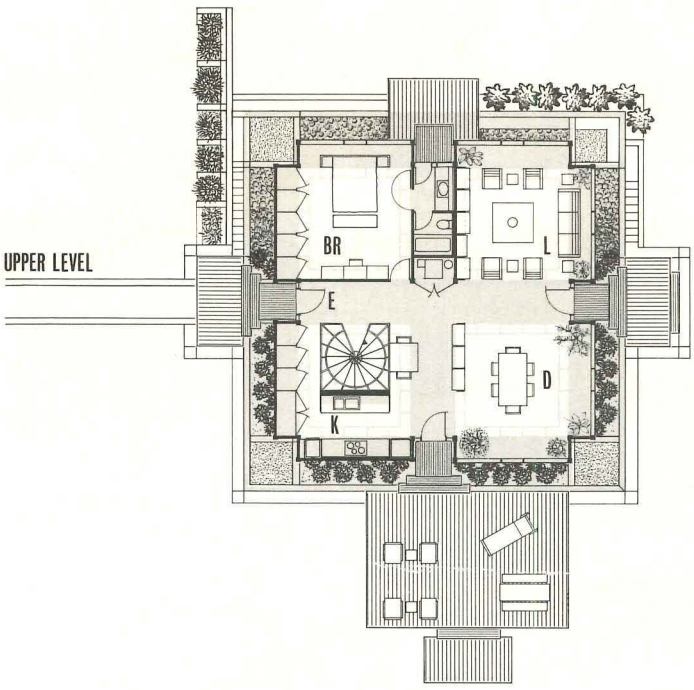
A box beam was devised for the garage building, fabricated from four punched steel channel studs spot-welded at the corners. Punched steel joints were shop-welded in sections to form roof modules, which were erected on site. These joints also accommodate the 4 in. sandwich panels that are used for the roof as well as the walls.

A harmonious indoor-outdoor relationship is achieved by surfacing interior panels with the same sand-glass-resin combination used on exterior panels. Philippine mahogany wood strips used as edge rails on exterior panels are also used on interior panels, and become the dominant element articulating the total expression of the exterior form and interior spaces.

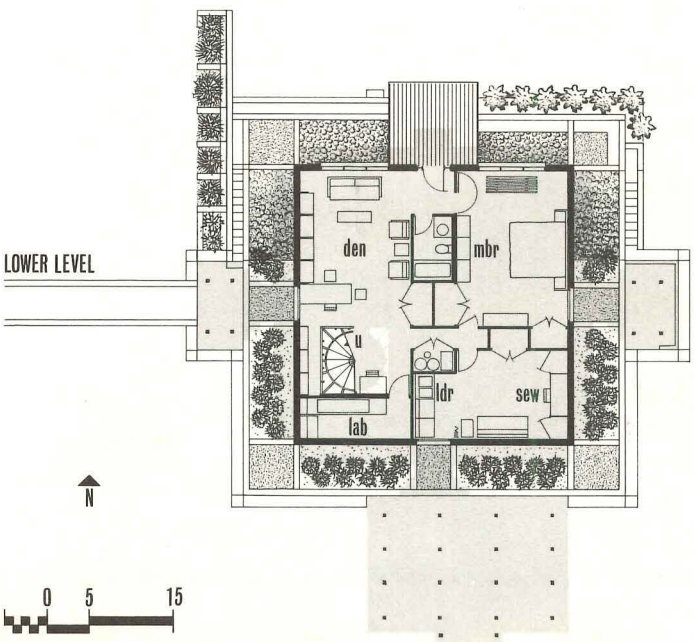
Schmiedeke has shown considerable discipline in the design of his home. In addition to the careful definition of activity areas and systems of construction, he has paid particular heed to the intricate way the house presents itself. Extensive landscaping construction in the immediate area near the house and garage strongly relate to the land through such ele-



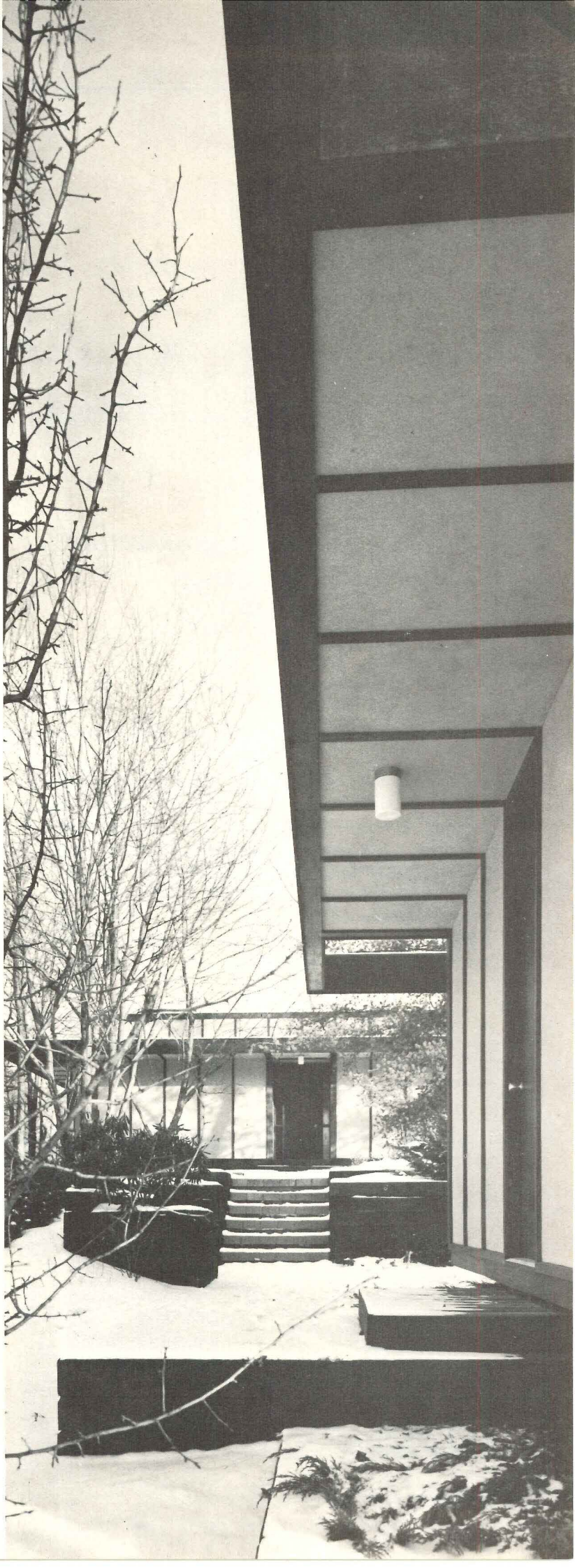
SITE PLAN

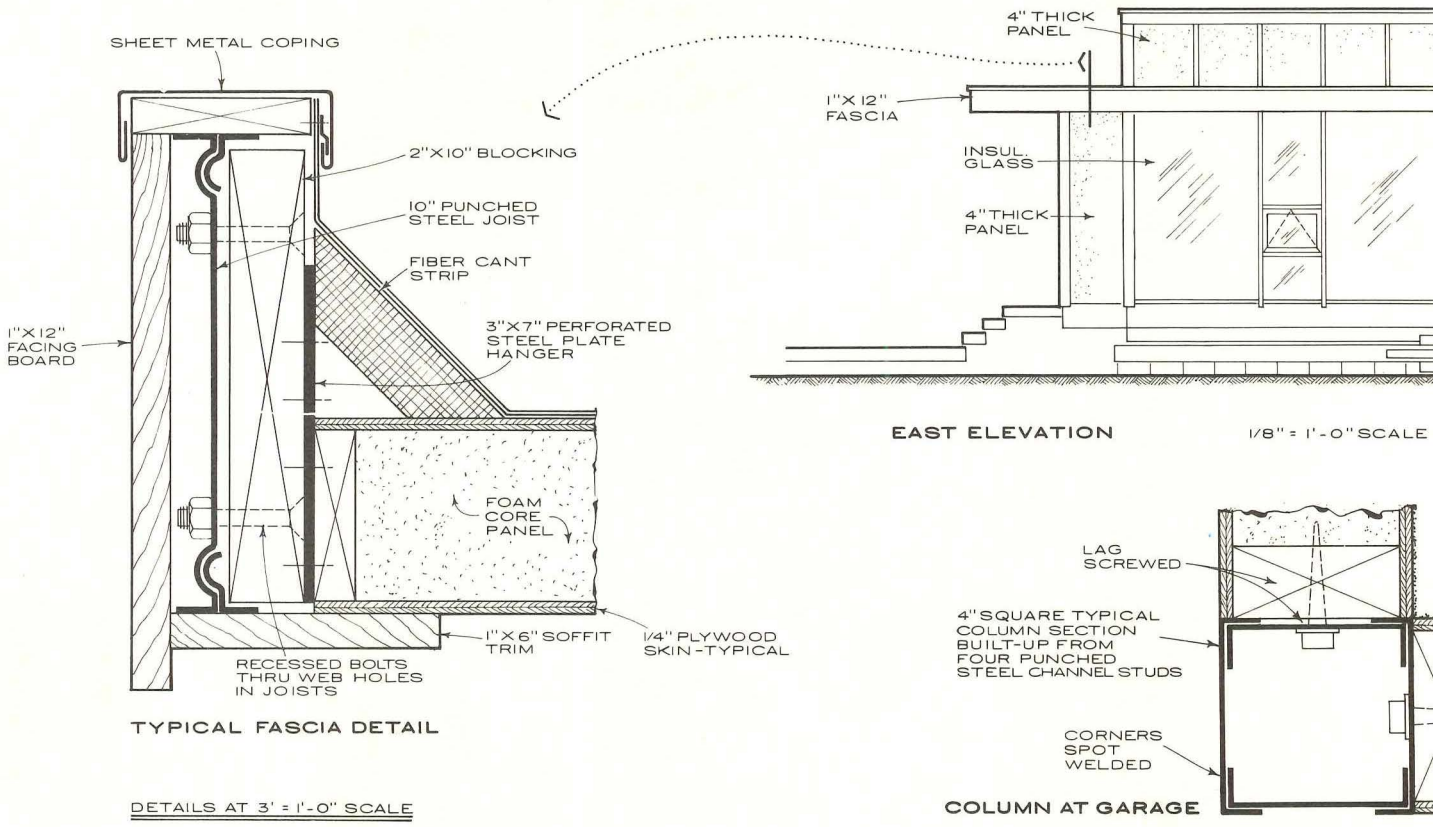


UPPER LEVEL



LOWER LEVEL



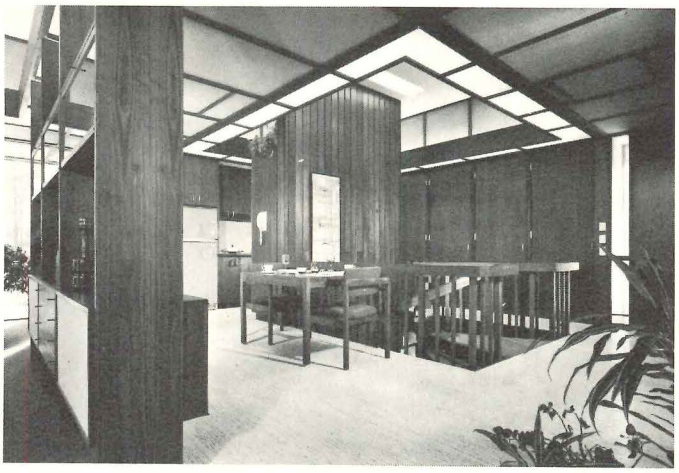


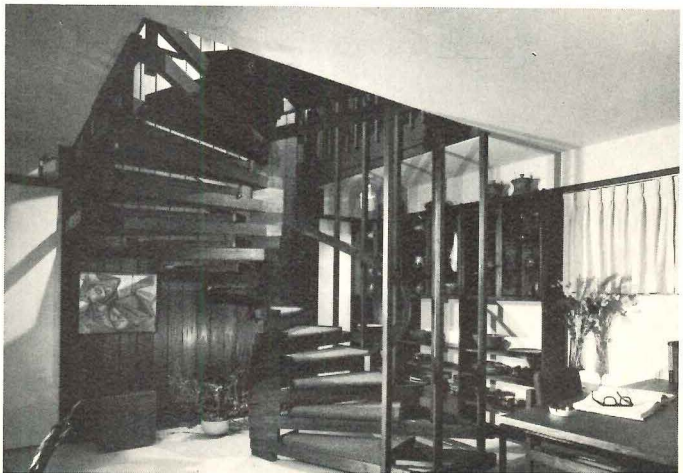
ments as wood curbs, edging, walks, decks, retaining walls, hillside stairs, and precast embankment blocks. "All these reach out in a linkage system," suggests Schmiedeke, "to relate house and garage not only to the natural landscape, but to each other as well." The total effect, though not intended, is an exacting elegance reminiscent of the fine Japanese house that used formality as a framework for a gracious life style and becomes an organic part and inspiration of that style itself.

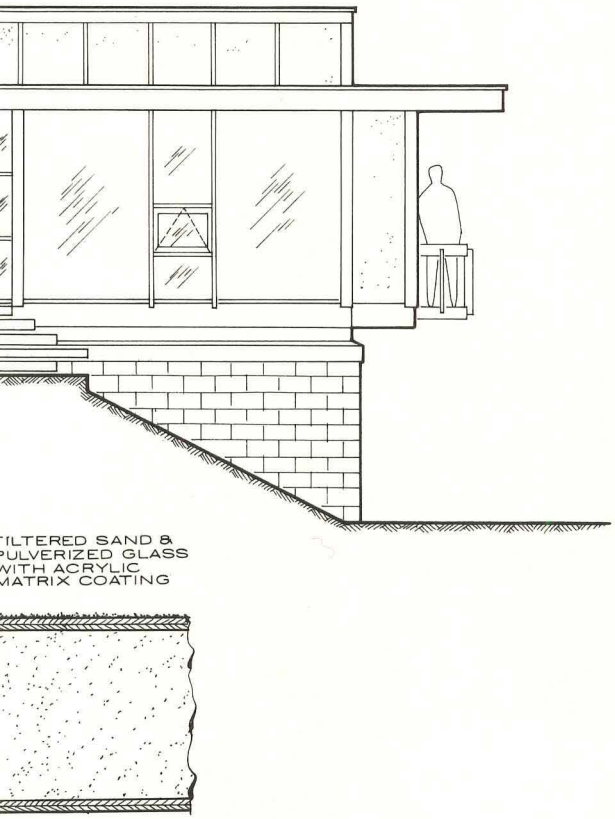
ARCHITECT'S RESIDENCE, Ypsilanti, Mich. **Architect:** Denis Charles Schmiedeke. **Site:** Gently contoured lot overlooking the Huron River Valley. **Program:** Residence for architect and wife, with accommodations for frequent guests. **Structural System:** Steel frame, columns, and joints; plywood decks. **Major Materials:** Steel, plywood, glass, foam core-plywood sandwich panels. **Photography:** Lens-Art Photo.

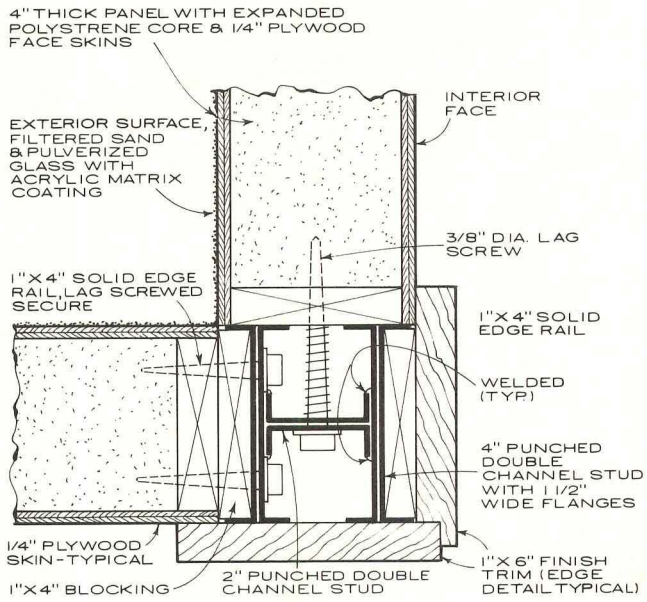


Interior walls are paneled in mahogany boards, plastered, or covered with carpet. Mineral acoustic tile covers all high ceiling surfaces, while low ceiling surfaces are acrylic/sand coated. The house and garage (photo, right) are separated some 50 ft to preserve existing trees and grade variation, and to establish a pleasant arrival space through which one walks enroute to the house.



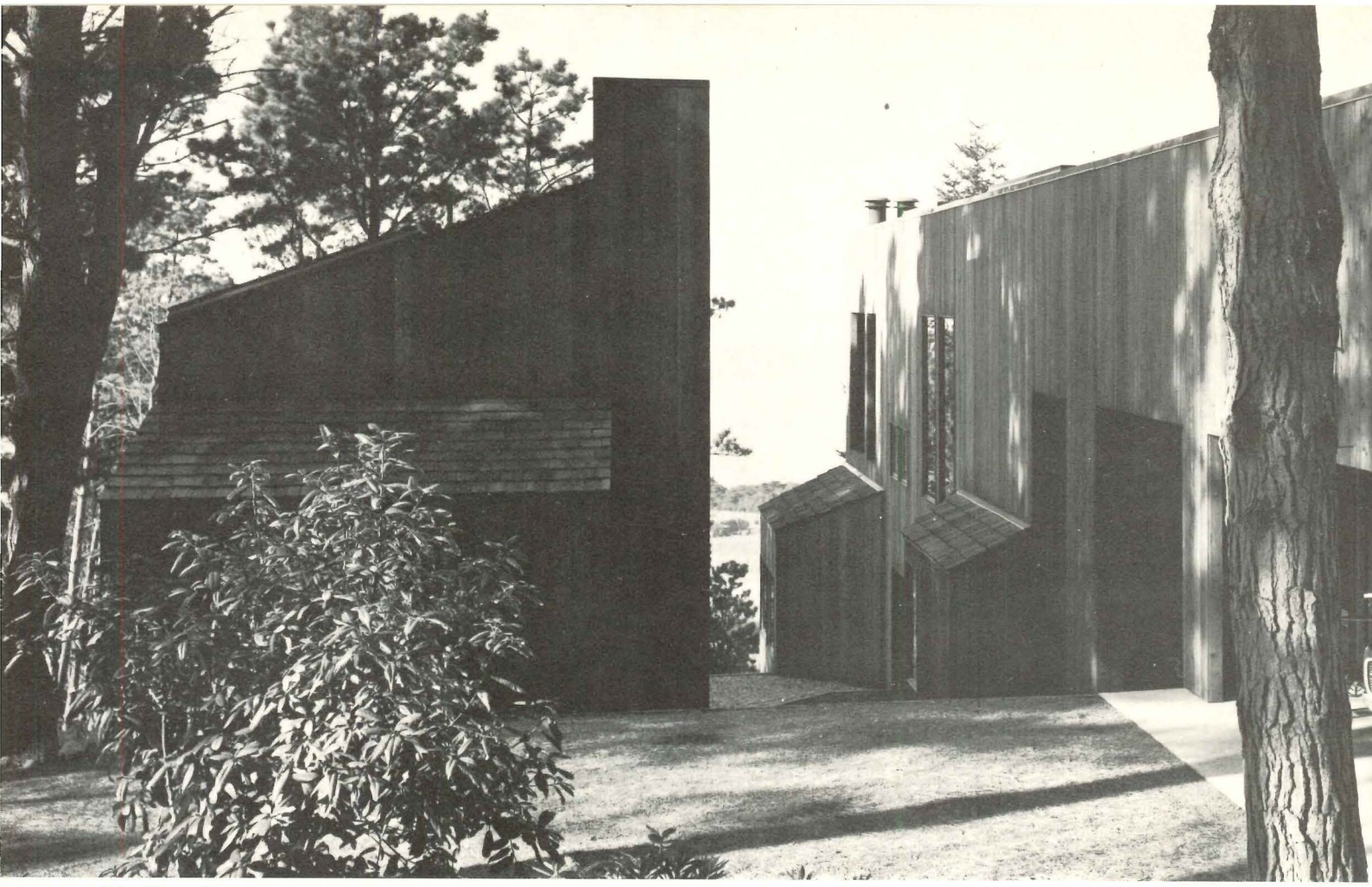






TYPICAL COLUMN



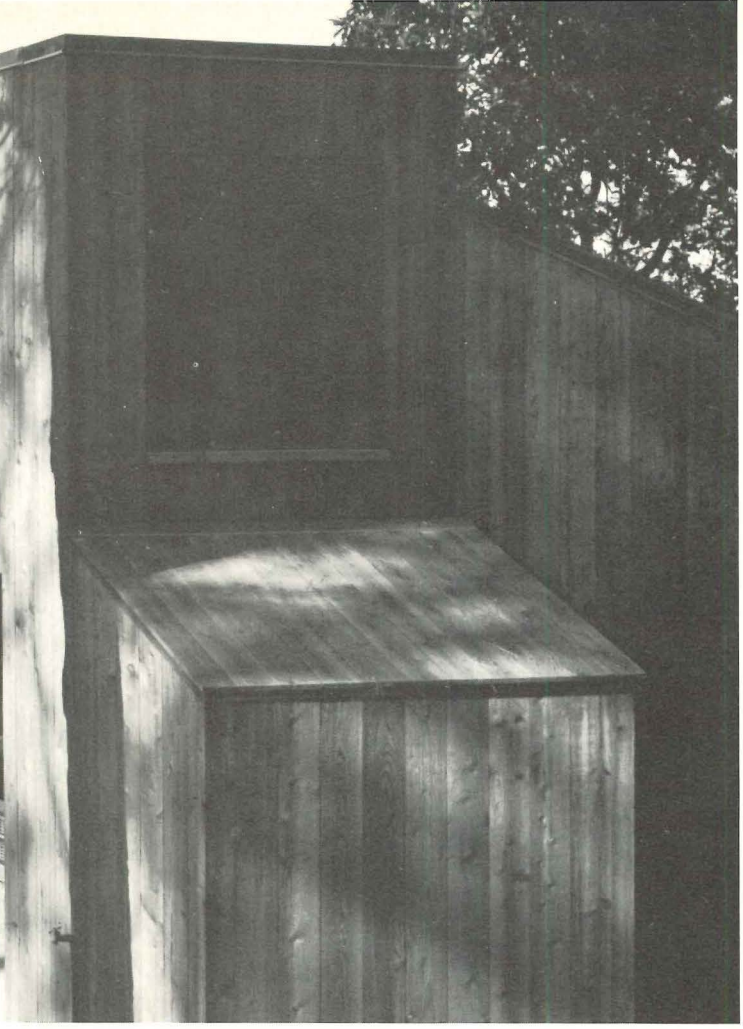


The Hines House

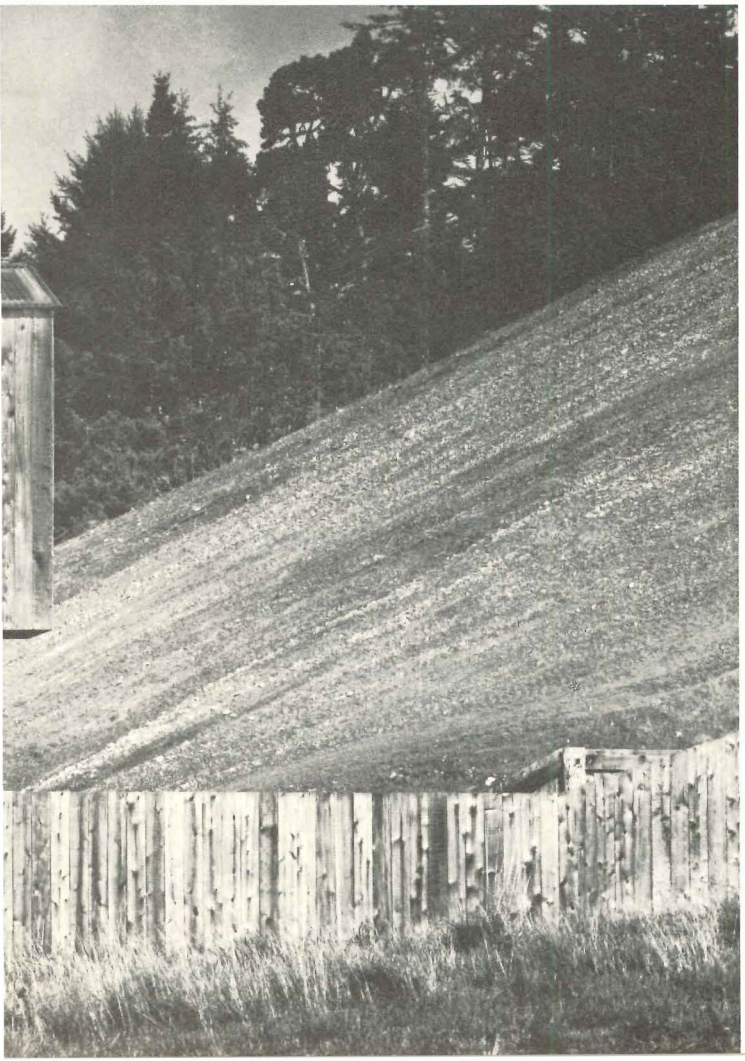
Extensions of a

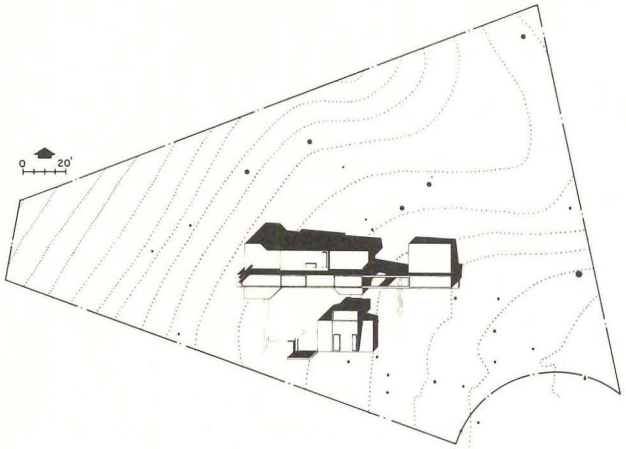
The Rush House





Design Device





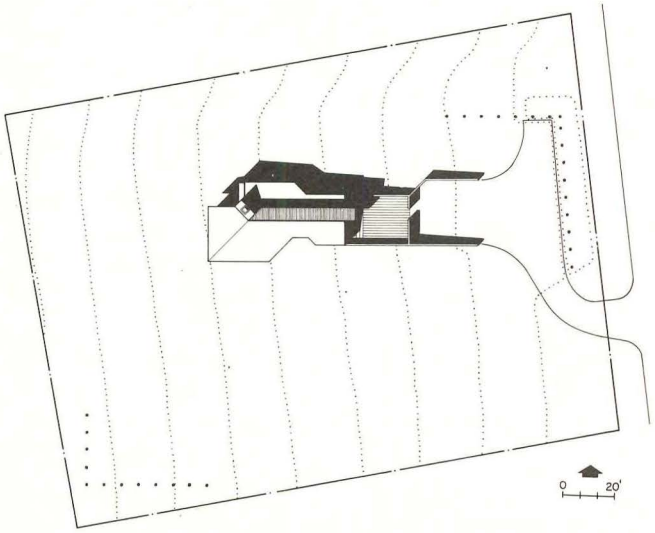
Two recent houses at California's Sea Ranch by Architects MLTW/Moore-Turnbull take the same basic design device — a central spine — and utilize it for opposite ends. The process shows the duality and ambivalence inherent in design motifs and the permissive cool of some architects today. These are lessons in what used to be called "versatility" and "manipulation."

The disparity in objectives of the two houses is dictated by differences in their sites. The Hines house is high on the hill, secluded among redwoods and cypresses and with a spectacular view down over the clifftop plateau and the ocean below. The Rush house is on that plateau's flat meadow — exposed both to winds and to views from all sides (except for some new protective tree planting).

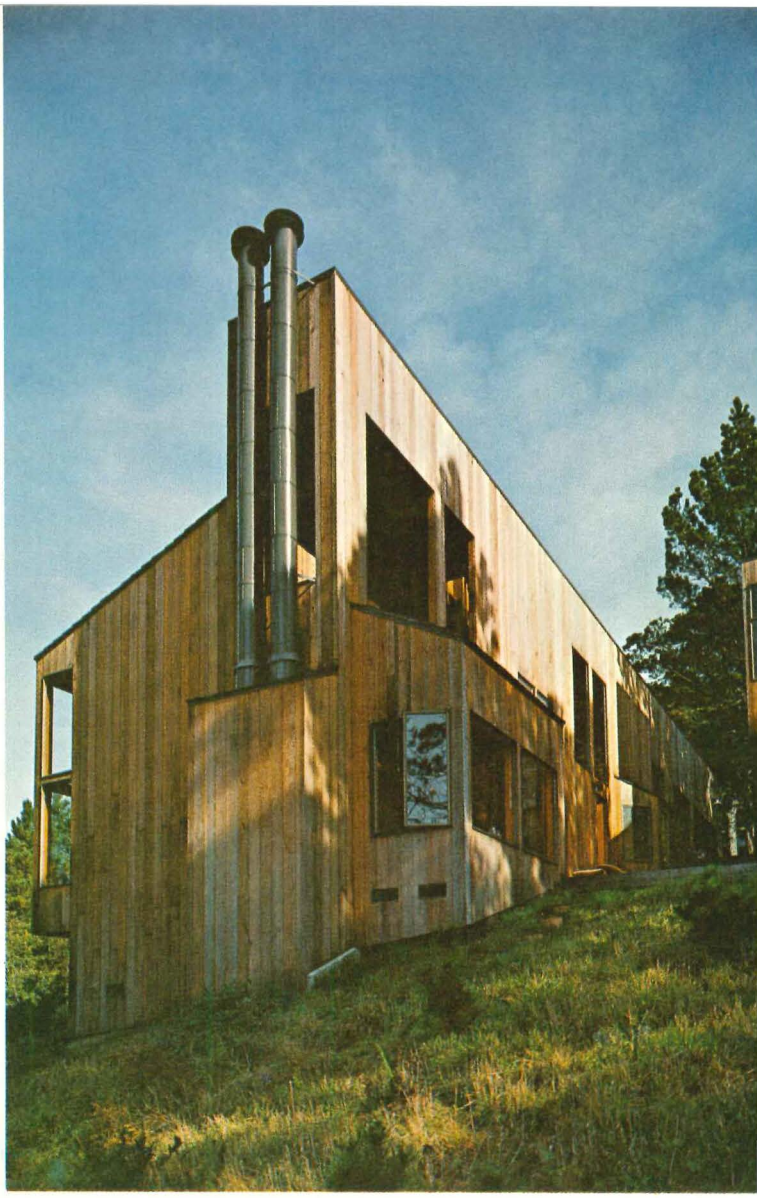
The design motif that the two residences take off from makes them additions to a family of houses descended from the architects' design of the first athletic club for The Sea Ranch. That rugged community is fast becoming a museum of modern architecture, and these buildings are a telling exhibition within its departments.

The athletic club (p. 156 MARCH 1967 P/A) has a central spine in the form of a buttressed single wall; volumes are strung along that central cord, and spaces pierce it here and there to form a continuous interior.

The Rush house and the Hines house also are



The Hines House



planned with central spines, however, in these designs, the spines have developed into double walls — or "hollow spines," as the architects call them. They serve as central hallways and circulation streets. But from that point, the different site conditions of the two houses influence markedly different relationships between the spines and the adjacent spaces.

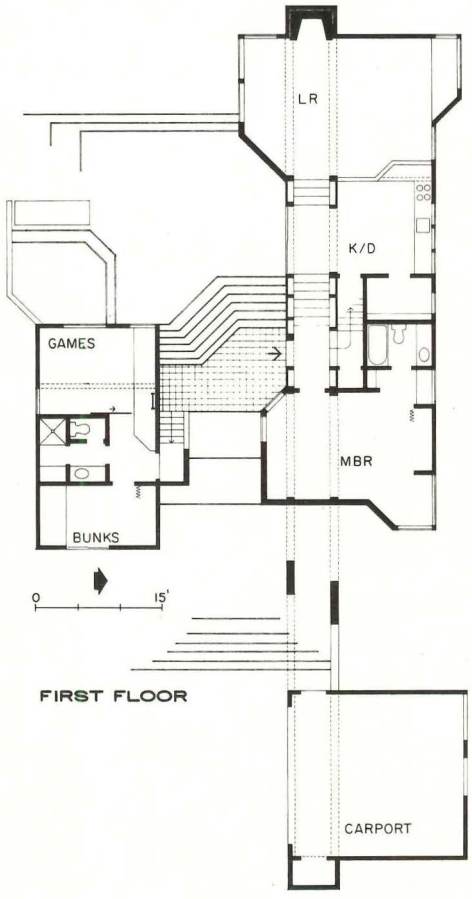
In the Hines house, spaces are strung out separately along the spine, rather like the athletic club design. But the spaces of the Rush house (which was actually designed before the Hines house) are clustered like a group around the spine. Here, the spine is incorporated into the house as a kind of skylighted interior court. It provides a focus inward, away from the exposed surroundings and views from future neighbors.

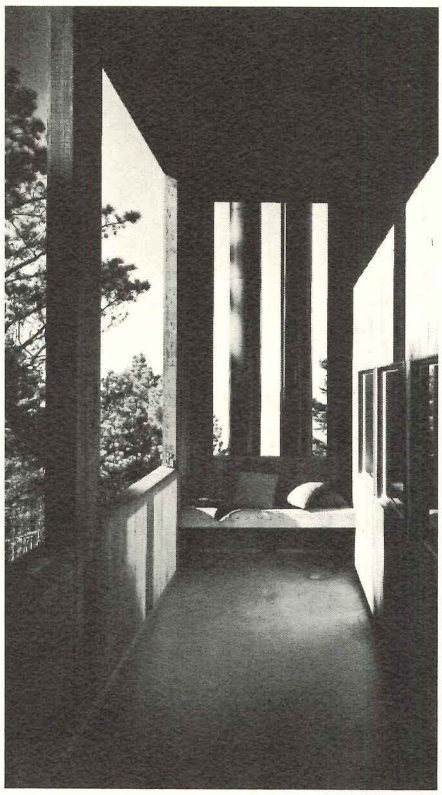
"The nature of Sea Ranch," Charles Moore observes, "is that the planning up on the hill is better and looser than the tight planning below. The Rush house makes the best of this." (p. 121 MAY 1966 P/A.)

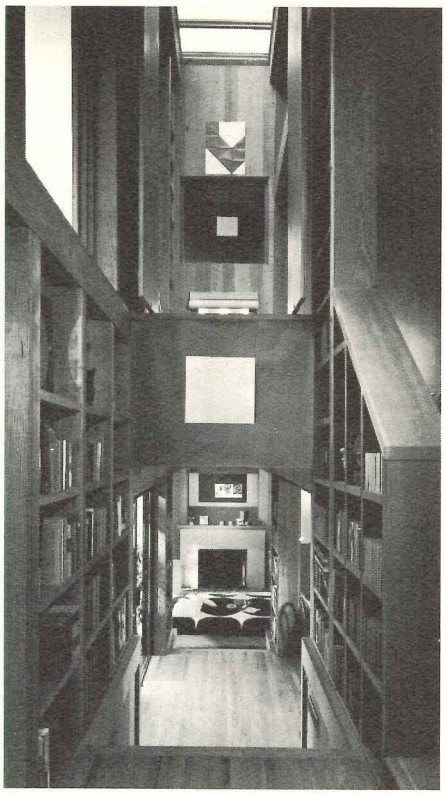
"The site of the Rush house is a cul-de-sac that has been cut off by roads," Architect William Turnbull continues. "It is flat, even grassland, much like the ocean, from which it is set back. Distant and near distant outlooks are attractive, but since surrounding future development of this rural subdivision posed the problem of long-range view protection, we planted L-shaped rows of cypress on opposing corners of the lot to drydock the house. It was envisioned as an overturned boat floating on its ocean-meadow site. Actually," he adds, "the contractor calls it 'a stalled locomotive.' "

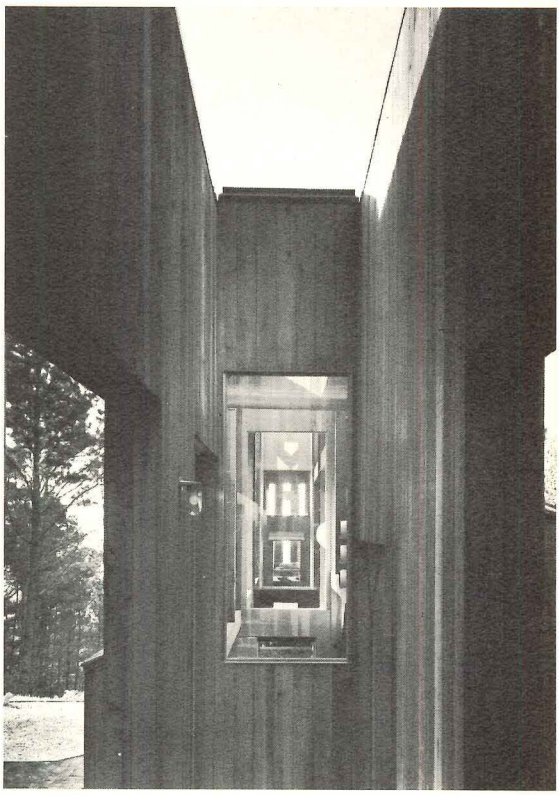
The Rush house design evolved "from the traditional split-level house," according to Architect Turnbull. "It has an area close to the ground for accessibility and play, and one high in the air for an undisturbed overlook view. Because air temperatures along the coast are cool and climate sometimes foggy, the minimal central spine scheme brings bright light, color, and warmth into the very center of the house."

Opposite to this "interior" objective, the double-

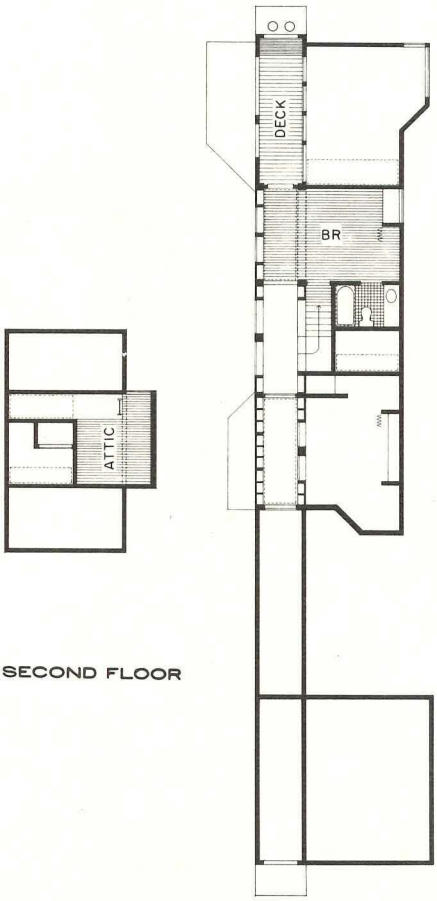




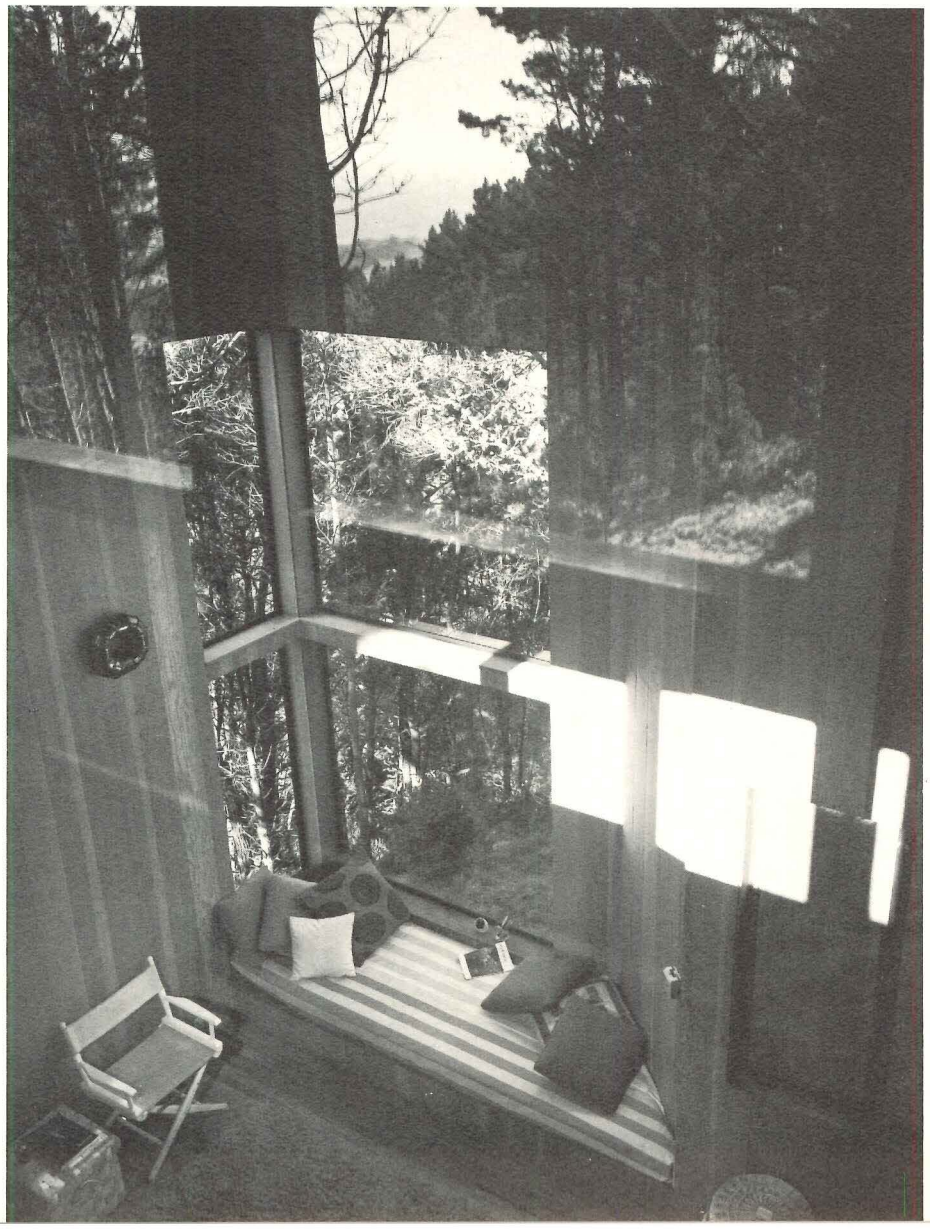




The Hines House structures a soaring view of the ocean from the hills above The Sea Ranch. Like the Rush House, it is planned along a central spine of a hallway that stretches from the carport breezeway (above right) through the living room (above middle) to a crow's-nest lookout (above left). The ambivalence of this spine — crossing, as it does, inside and outside, skylighted and solid-roofed, and rising and falling on several levels — results in a subtle wealth of multiple vistas.



SECOND FLOOR



The Rush House

walled spine of the Hines house is an exterior street. Charles Moore observes that "The Hines house is the Rush house turned inside out."

As the architects see it, the Hines house is not a main building with a guest house bunk building set off from it; rather, the two buildings are a single unit with a wide exterior spine and an adjacent covered interior spine running down the middle and splitting the house.

The solution was arrived at in order to capture and to emphasize the dramatic view over the meadow plateau and the ocean and cliffs below. The plan forces one to see down along the spine and to recognize by suggestion, that the house is visually organized along it. "The spine suggests without telling specifically," Architect Turnbull explains, "that the spaces are addended to and tied into this central idea."

Yet the outdoor spine or street leads one down from the garage to an open courtyard where one discovers the landscape first before going back into the house. The entry is not within the interior spine but from one side of the exterior spine.

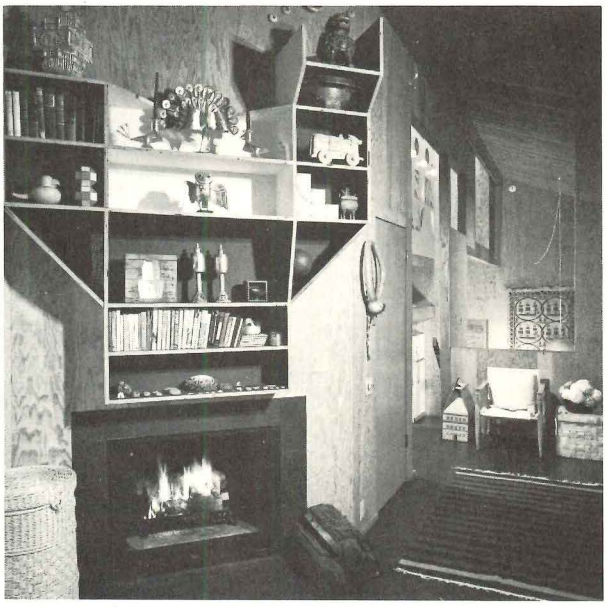
"The plan, then, is organized to direct the arrival's view," Turnbull continues, "first toward the tree cover and then, by leading him down the slope through the tunnel or street of houses, to provide a surprise discovery of the long slot view of the ocean a mile away, which is revealed as a diagonal vista only at the point of entry to the house."

"Normally," Turnbull adds, "you would not try to fight the grade by running the spaces and the entries off from it at 90° angles, but if you are trying to lead to a discovery of the site itself and to emphasize the views, this is an effective arrangement."

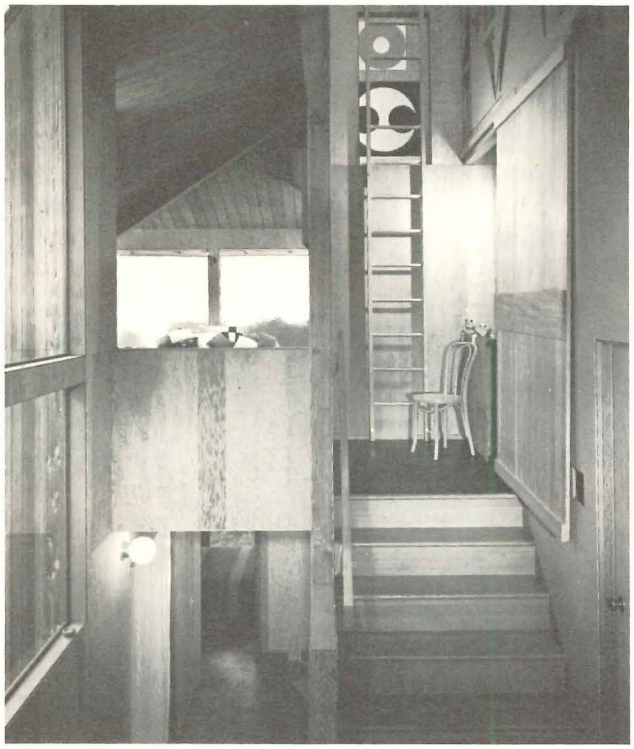
Normally, one wouldn't think either that what was good for this purpose could be equally good for concealing a too-exposed view also. But the architects have shown that there are two sides to every design device as well as permissive ways of manipulating those ambivalent elements.

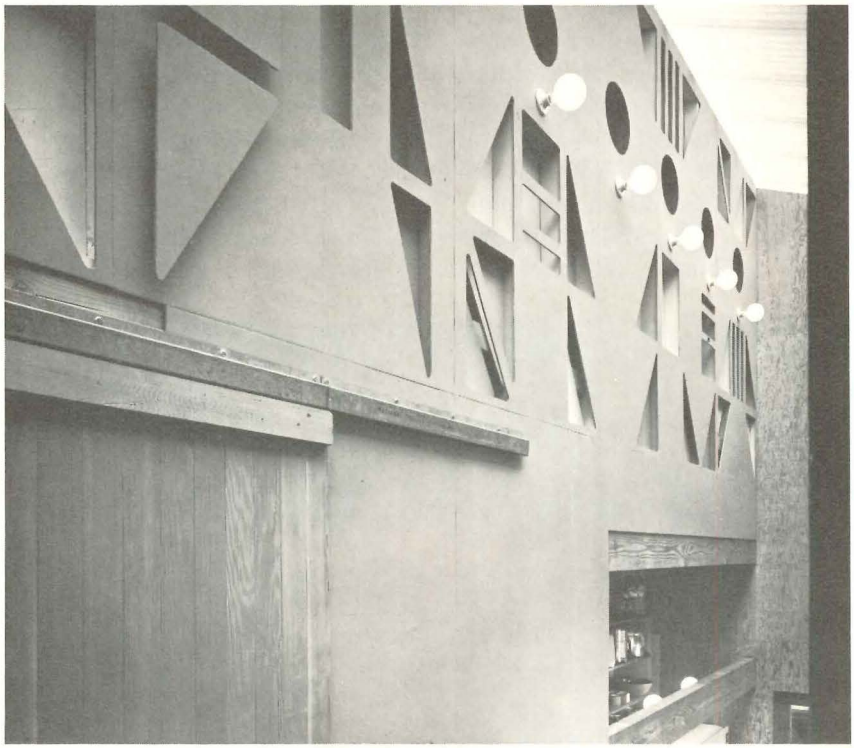
Photos: Morley Baer



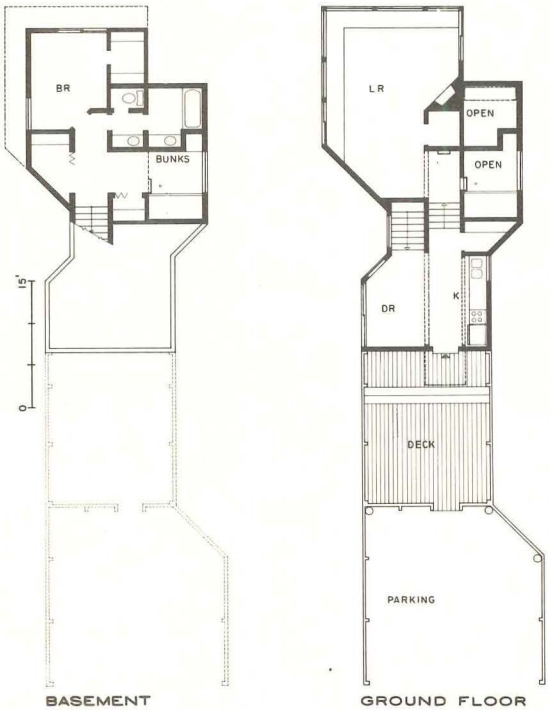


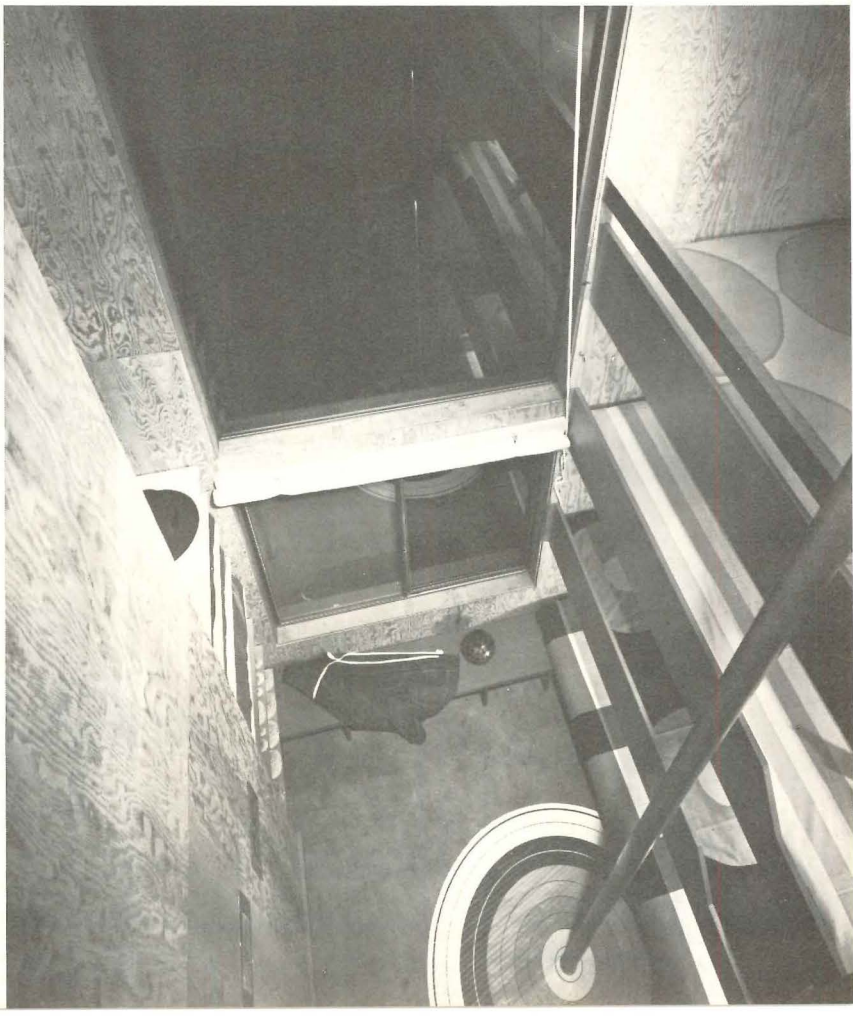






The Rush House offers a view over the open meadow land at The Sea Ranch from an airy living room (facing page). The central spine of the hallway leads past a colorful cutout wall (above right) and past a bunk bedroom with a fireman's pole entrance for the children (below) to the living room beyond (above left). In the architects' view, a corrugated plastic skylight above this double-walled central spine, gives the atmosphere of a central interior court, creating an inward focus for the exposed house.



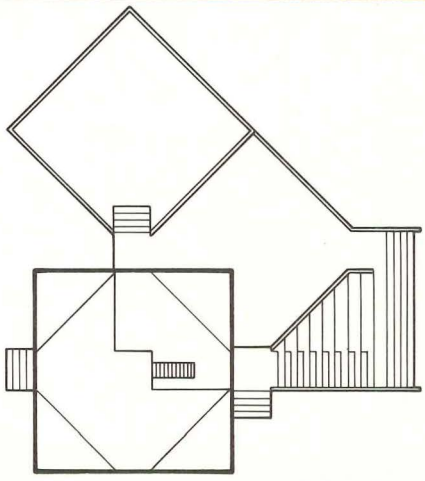


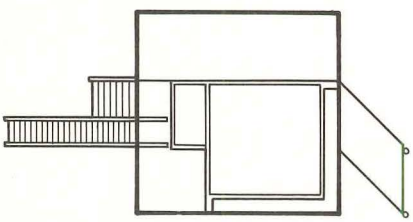
Forms as a Kit of Parts

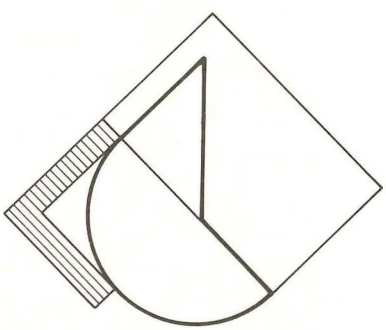
In four years of practice, Philadelphia Architects Murphy-Levy-Wurman have done planning and architectural projects of some range — including the Industrial Valley Bank's downtown headquarters (p. 98 SEPTEMBER 1969 P/A) —but they had never designed a house. Then, virtually all at once, they did six.

All are beach houses on New Jersey's Long Beach Island. All have basically similar sites, similar programs, and comparable budgets, as well as similar construction methods and identical materials. Two are at separate locations, but a group of four provided a special opportunity: they are on adjacent lots, part of a long strip of land owned by three clients who will sell parcels on the proviso that buyers build similar houses — preferably designed by Murphy-Levy-Wurman.









"I always try to use the simplest forms until I know why to do it another way," Architect Wurman explains about his firm's work. "So our forms are often the same. Boxes and semicircles are our vocabulary."

For the first of these six houses, which was for Barbara and Robert Kulicke, the architects designed "an architectural landscape of rotated squares," as Architect Wurman sees it. They did not use the circular form in the second house either, except in an interior usage as a conversation-pit furniture arrangement. But for the group of four houses sited together, they foresaw the need for the variety that the full range of forms would provide — still using only those basic forms.

"We thought there would be a greater good in

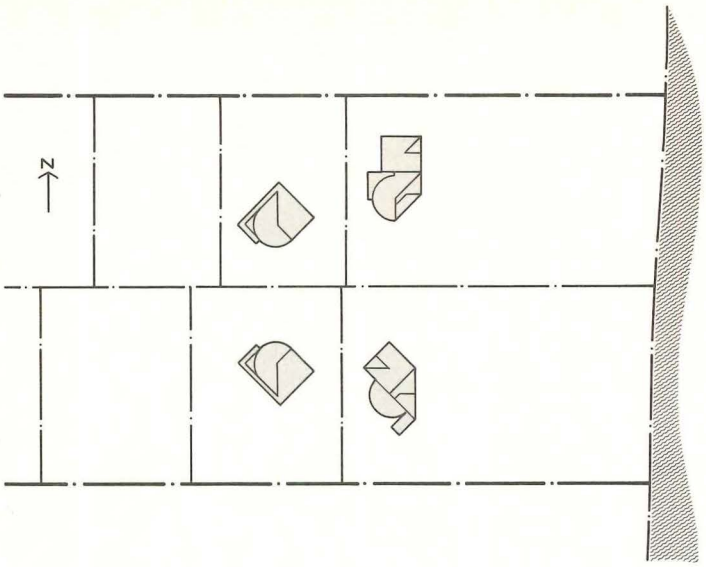
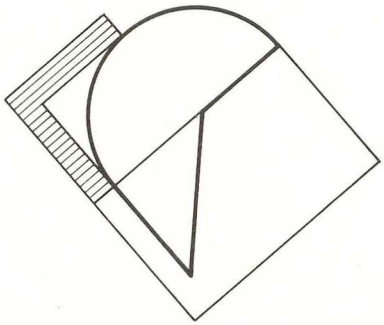
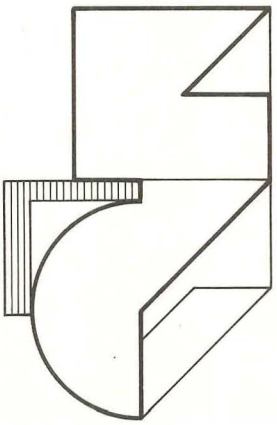
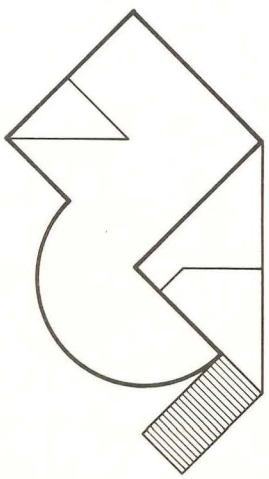


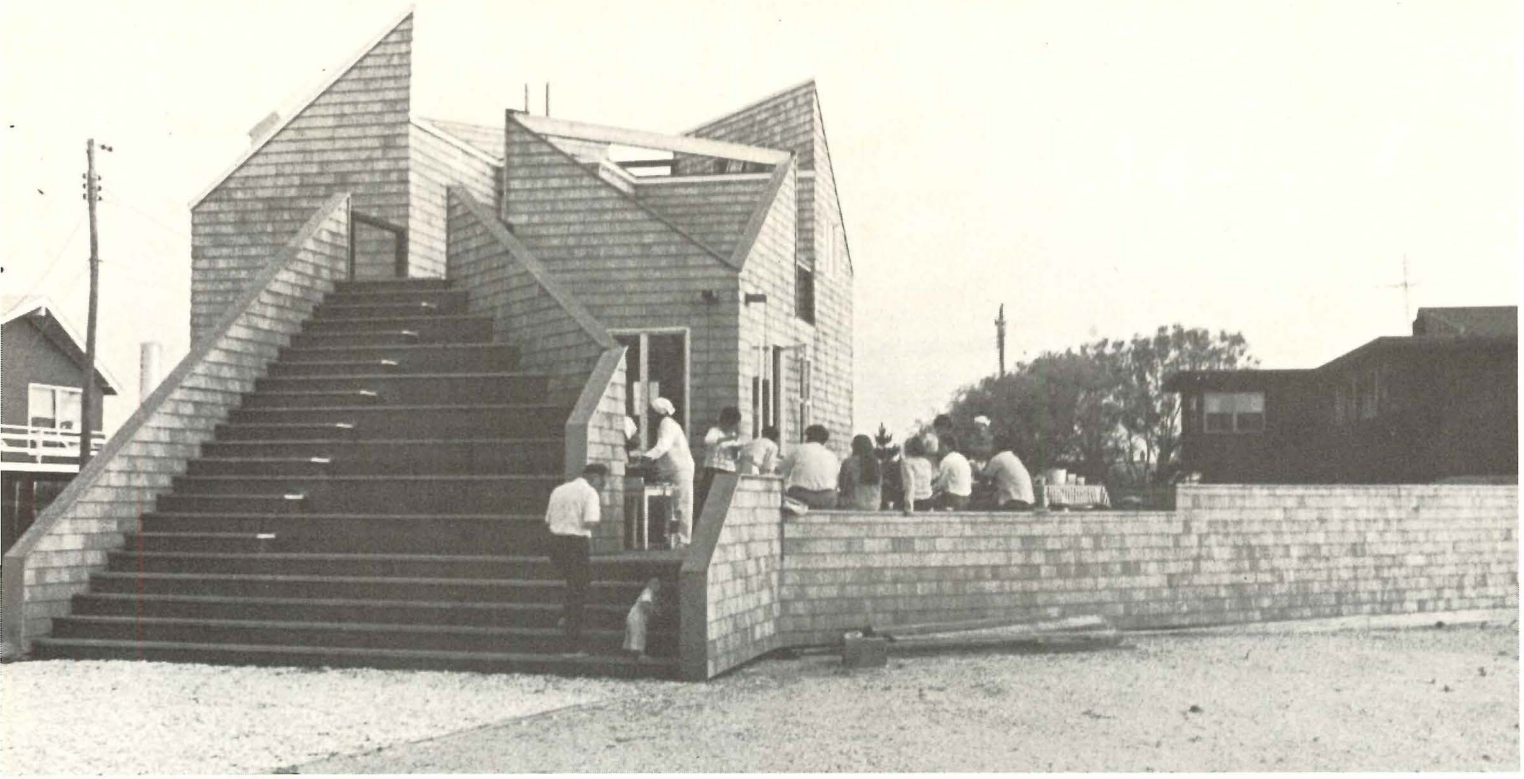
Photo: Jon Naar





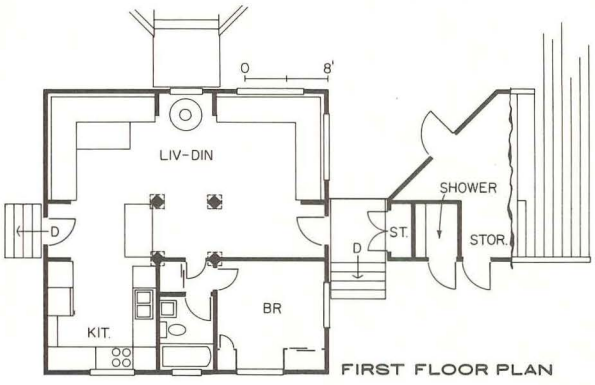




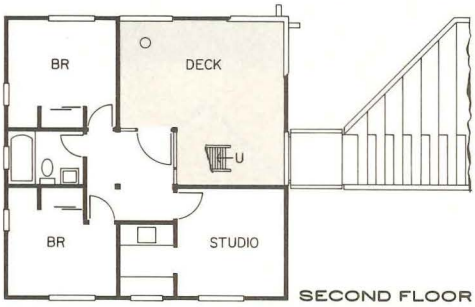


The house for Barbara and Robert Kulicke — he, a painter and head of the distinguished frame-making firm that bears his name; she, the organizer of Multiples and the Betsy Ross Flag and Banner Company — is on a point of land with uninterrupted views of both the ocean and the bay. Adult spaces are on ground level with teenage spaces above. The house is a square 25′ x 25′, composed of four 10′ x 10′ spaces and four 5′ x 10′ spaces with a space 5′ x 5′ in the center. It is a simple plan, but the section shows some inventive complexity, particularly on the upper levels. The plan, according to Architect Wurman, is "an architectural landscape." The overall site plan shows a geometric manipulation of rotating squares.

The first spinoff square is a porch; the second, a high-walled secret garden that protects espaliered pear and mimosa and roses from the wind. Between the porch and the house is a great stair, which provides a seemingly lavish sculptural wall to one side of the house and which also provides an additional outdoor room with furniture for summer parties.

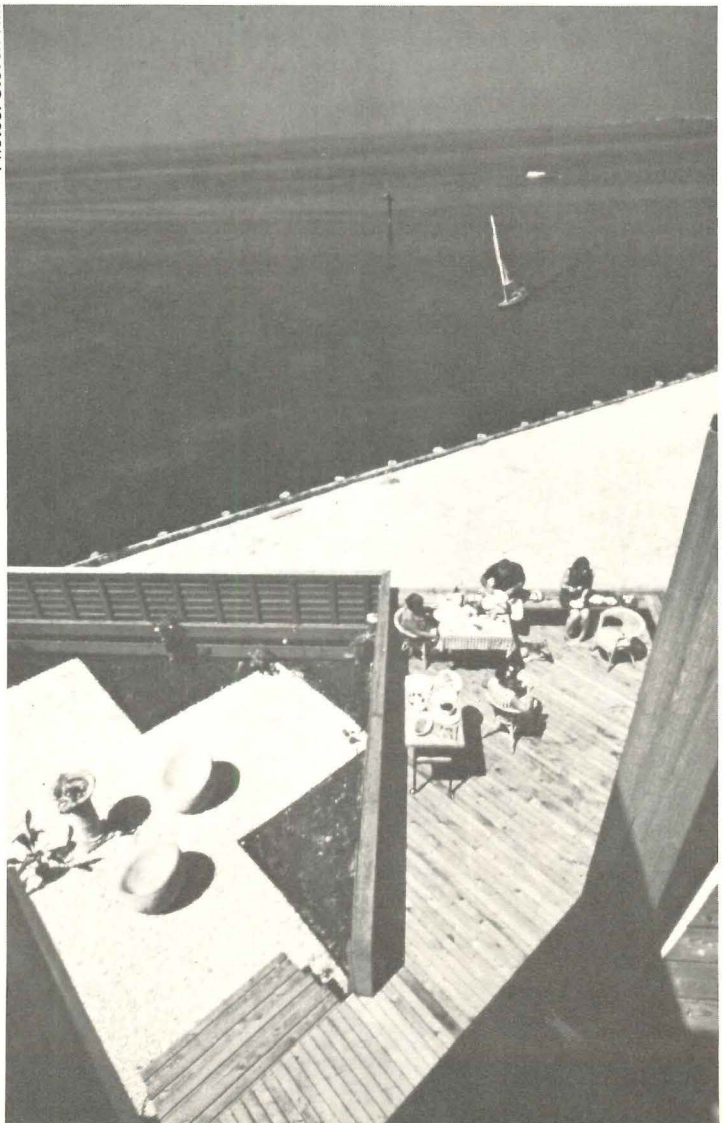


FIRST FLOOR PLAN



SECOND FLOOR

Photos: Steven Hill



building similar things," Architect Wurman says, "so they would not fight each other." With this determination, the architects developed a series of parts that could be assembled like a kit: first, the half-circle living room where people can sit around for talk with each other and still see the ocean through the glass-walled flat side. It is the conversational scale of the open stage. Second, "and the dumbest thing," Wurman notes, is a square, which can be easily and variably divided into bedrooms.

"With every new project you do not try to reinvent the wheel," Wurman states. "If you can get rid of this hump, you are healthier."

From this point the architects went on to manipulate the basic geometry, both to serve the functional requirements of the several clients and also to permit the houses to compose a micro-community image that would enhance the aesthetic density of the beach. The major landscape effort was to have all telephone and electric lines on the site put underground.

The basic architectural forms were manipulated so each had views of the ocean despite setback limitations. The two smaller houses on the second lot line back were set so they had views between the two ocean-front houses. And Architect Wurman feels that these two houses "have a surprisingly intimate relationship with the ocean."

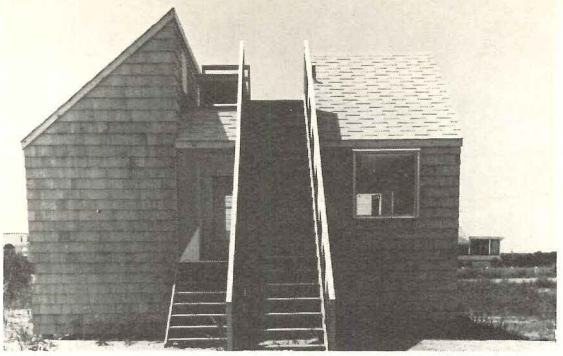
The basic forms were also manipulated to provide privacy. In the boxes, windows are high on the lower floor bedrooms, whereas those in the upper level master bedrooms are set back from the beach-view decks that protect them from outsiders' view. In the semicircle, windows are placed on the flat sides oriented to the ocean; wide decks prevent the view from the beach. The curved walls present windowless private sides to the other houses.

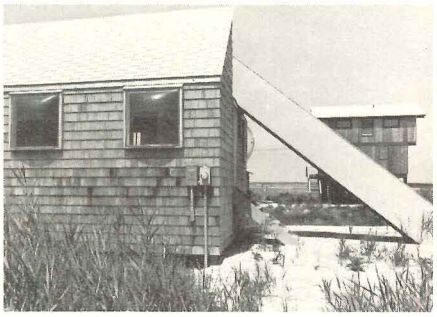
"You have to think about the immediate outside of a beach house and how it is to be used," Wurman observes. This thinking brought the architects to provide a covered outdoor space where children could play in the rain — a time when most beach houses become impossible. As a result of elevating the semicircular living room, a covered outdoor play area was provided underneath.

Other than this manipulation in section, the elemental parts were simply manipulated in plan — "and the elevations just happened," according to Wurman. "The last thing we draw are elevations."

"Once we had the semicircle and the box," he continues by way of example, "the most elemental connection was to overlap them and make a straight line." This became the diagonal deck of the first house — for the Salkes. There, according to Architect Wurman, "the outdoor stair is generated out of the difference between the dimension of the radius of the semicircle and the side of the box." The outdoor stair, part of the thinking about the use of a beach house exterior, is a variably useful element — for entering from the beach, for playing, and even as a partyscape that provides its own furniture.

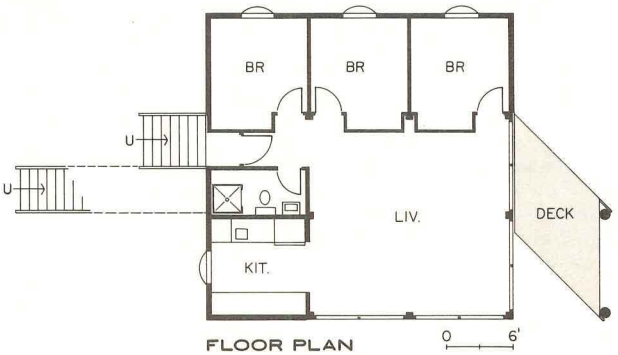
The danger of using simple forms is that their





Photos: Joan Ruggles

The second of the firm's houses was a speculative venture. Perhaps, because there was no client to make complications to the program of "a nice place for anybody to live at the beach," Architect Wurman considers this "the simplest plan and the best." It starts with a square 27' x 27' that is divided into a tick-tack-toe grid. Above, a deck the size of a living room is left on the roof and reached by a long stair to the apparent gable; shed roofs are designed as 14 ft-high monitors over the bedrooms and kitchen. Plastic skylights used as windows give a fisheye effect from the inside. Because of them the building is known as the "Bubble House."



FLOOR PLAN

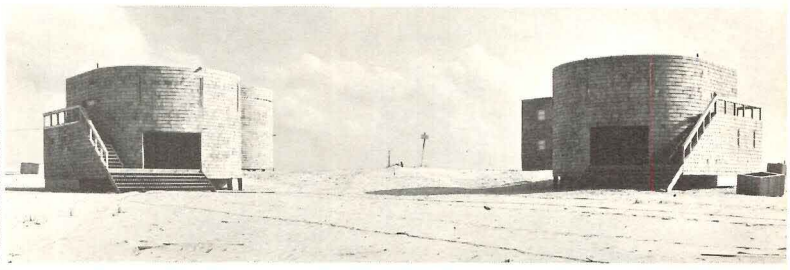
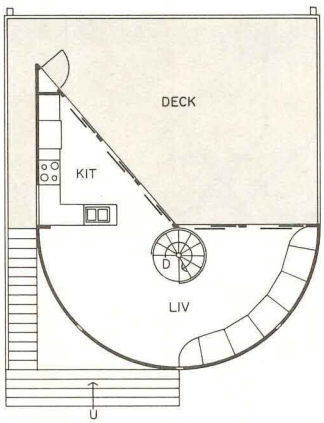


Photo: Steven Hill



UPPER FLOOR PLAN

Two of the four "Sandcastles" have identical but flipped plans. Since the requirements of clients Hyman and Kay were for smaller houses, the architects composed their forms into a more compact unit, setting the semicircular element directly onto one side of the box. Only half of the semicircle is planned for living space; the other half is devoted to the dining area, and it adjoins the kitchen. A critic might observe that this plan leaves the living room banquettes facing into the kitchen, but the circular stair at the center of the space and the large glass expanse overlooking the sea may well provide a stronger focus.

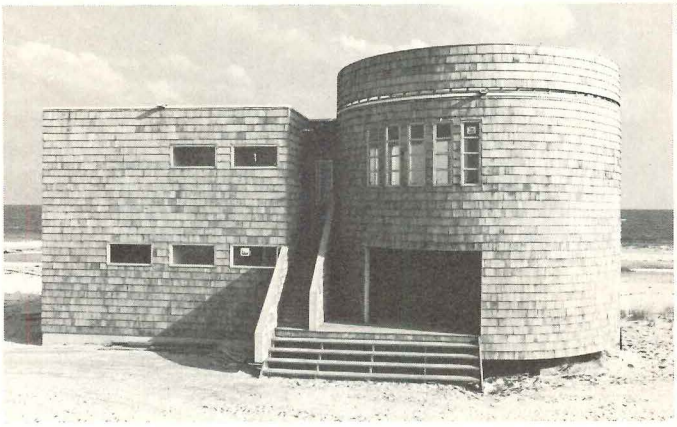
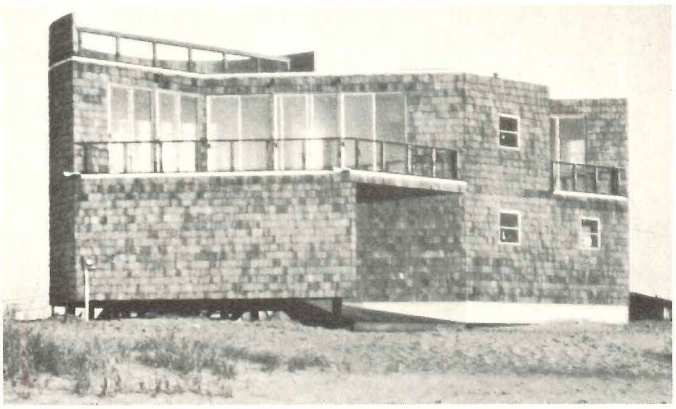
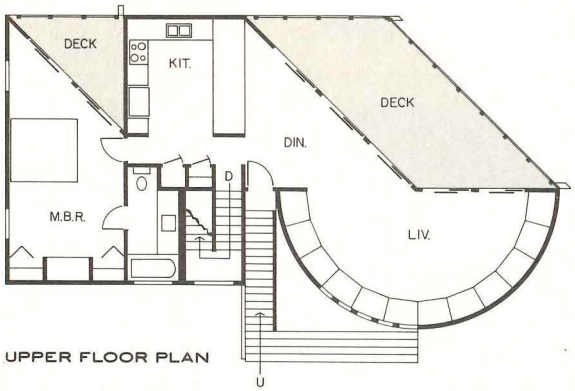


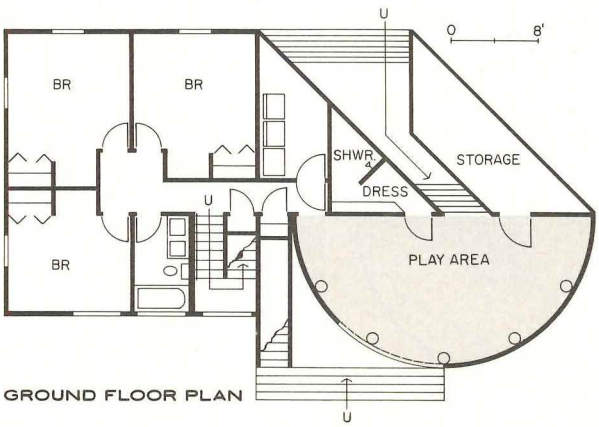
Photo: Steven Hill



The fourth of the "Sandcastles' " clients wanted a longer frontage on the beach, a larger kitchen, and a straight rather than circular stair; they also wanted the deck to be entered only from the living and dining rooms and not from outside. The architects filled this requirement by spreading the two elements apart, placing them alongside each other, in effect, and putting the entry stair between them, so that it enters the main spaces upstairs. The overall shape of this stair, however, is the same as in the two more compact houses, where it is outside the forms. Beneath the semicircular form, the children's outdoor play area has a ramped entry from the beach, rather than steps as in the Salke house.



UPPER FLOOR PLAN



GROUND FLOOR PLAN

architectural immediacy may look like glib stylishness. Architect Wurman's explanation of how the diagonal deck was derived adequately defends that critique, but he does admit that the opening to the covered outdoor play area, which is a parallelogram, is more questionable. "Except, it was a shape that was an opening, but clearly not a doorway that would automatically invite grownups," he adds. "The diagonal deck of the master bedroom, also, is a result not of stylishness but of not wanting a spindly corner." Beneath the main deck, a diagonal entry makes a funnel into the house and reveals an expanding view out from the covered play area.

Together, the simple forms have produced a fair degree of mystery and romantic ambiguity. It is not because of the cylindrical shape alone that the group of houses has been dubbed "The Sandcastles." Architect Wurman feels that the houses are "full of theater inside and outside."

"It has proved to me and to the clients," Wurman observes, "that not having four things fighting each other is quieter and pleasanter. Besides, it is something very special to have variations on a theme in four houses together.

"Gawkers sometimes say," he continues, " 'Well if I were going to build my own house I would want it to be different.' And there is talk about the four Sandcastles 'all being the same' and that 'it is just a development.' But this is certainly different."

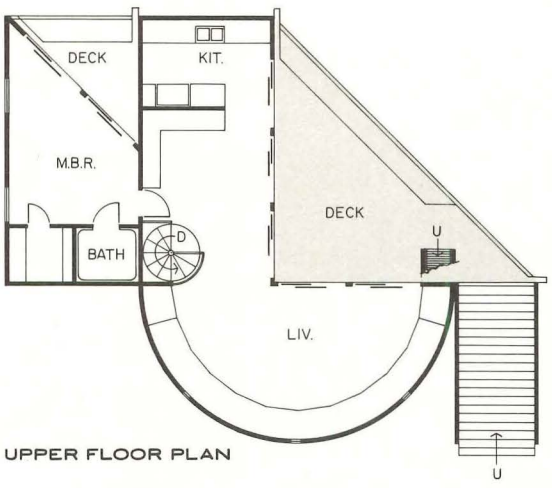
His discussion raises the old question about repetition even of good forms: No matter how much better than the development house an individual house is, the repetition of it somewhat cancels the effect. As more than one designer has asked, how many thousand Parthenons will look interesting together?

Architect Wurman says that six or eight houses on this long strip of property might be variations on the same theme and still look good. Anyway, "by the time you get back some distance from the beach," he notes, "you will have to relate to a different site in some way. Perhaps by making internal decks to make a private world."

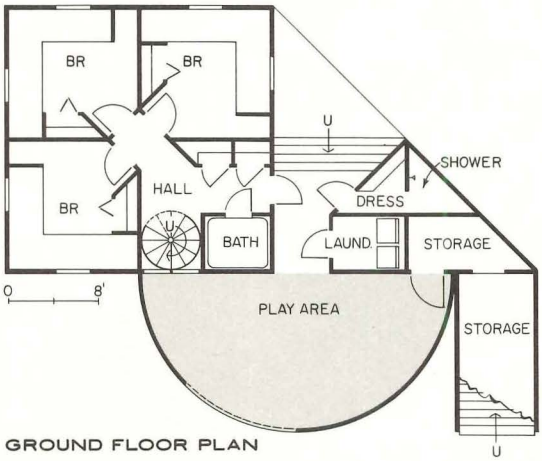
"It will be nice if the clients hold to the proviso that all the houses must be similar," Wurman muses, "but I hardly believe that possible in the real world."

Asked about beach community planning in general, Wurman replied, "Given my druthers, I would rather not design a beach community with different houses for each client; I think it should be a very dense development with a lot of open land around. But sometimes you have to make a decision to do the best you can with the givens, or not to do anything at all. The givens can push you into inaction if you decide that your blood is royal and that you cannot accept them. And it is difficult to change the givens in a beach community because the guy who runs the local grocery is also the mayor or the building inspector — and he lives there all year round, whereas the people who build beach houses live elsewhere. Still," Wurman concludes, "it is the important problem of the Public Environment, and you have to accept some givens and do the best you can."

Photos: Jon Naar



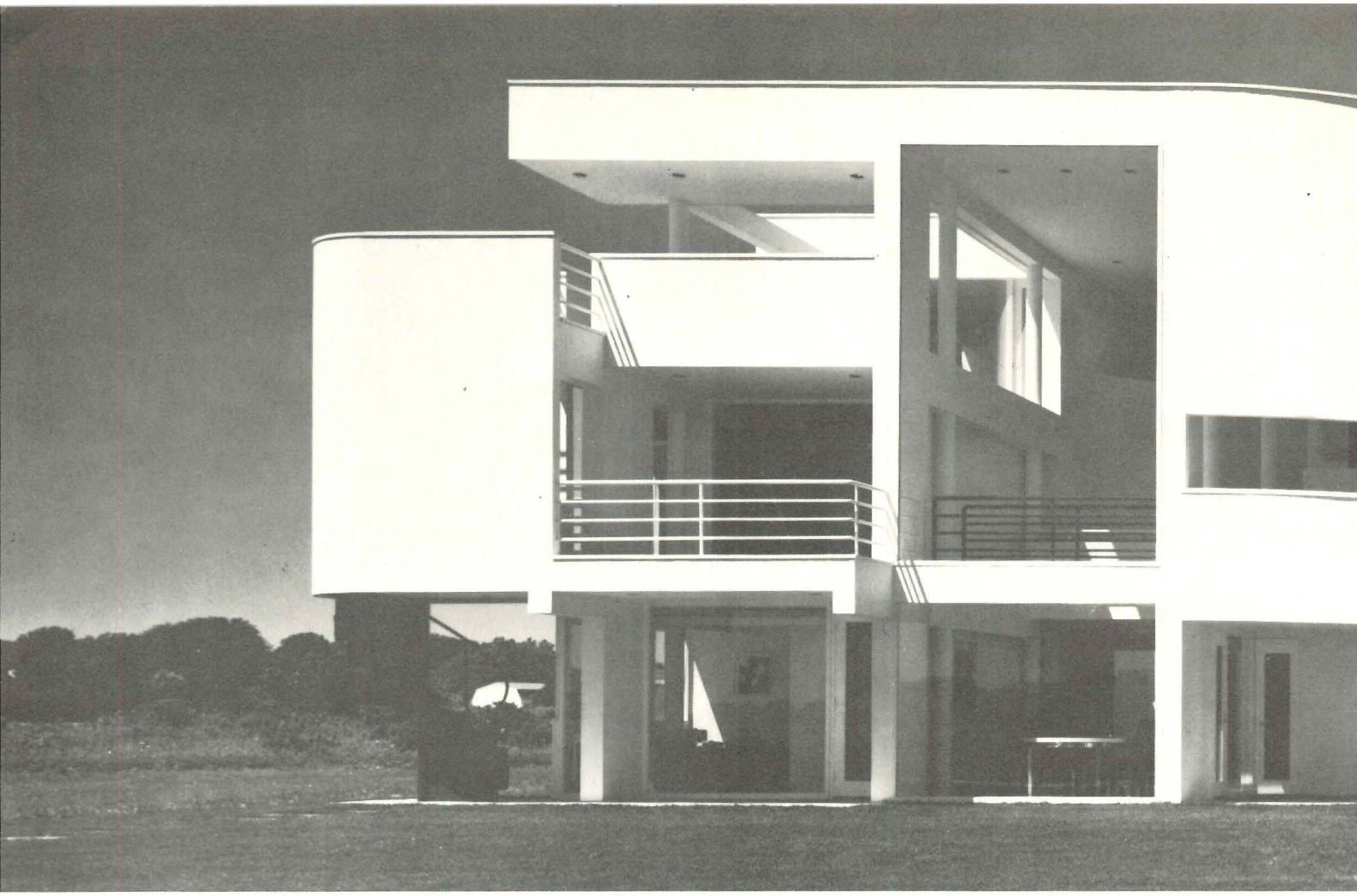
UPPER FLOOR PLAN



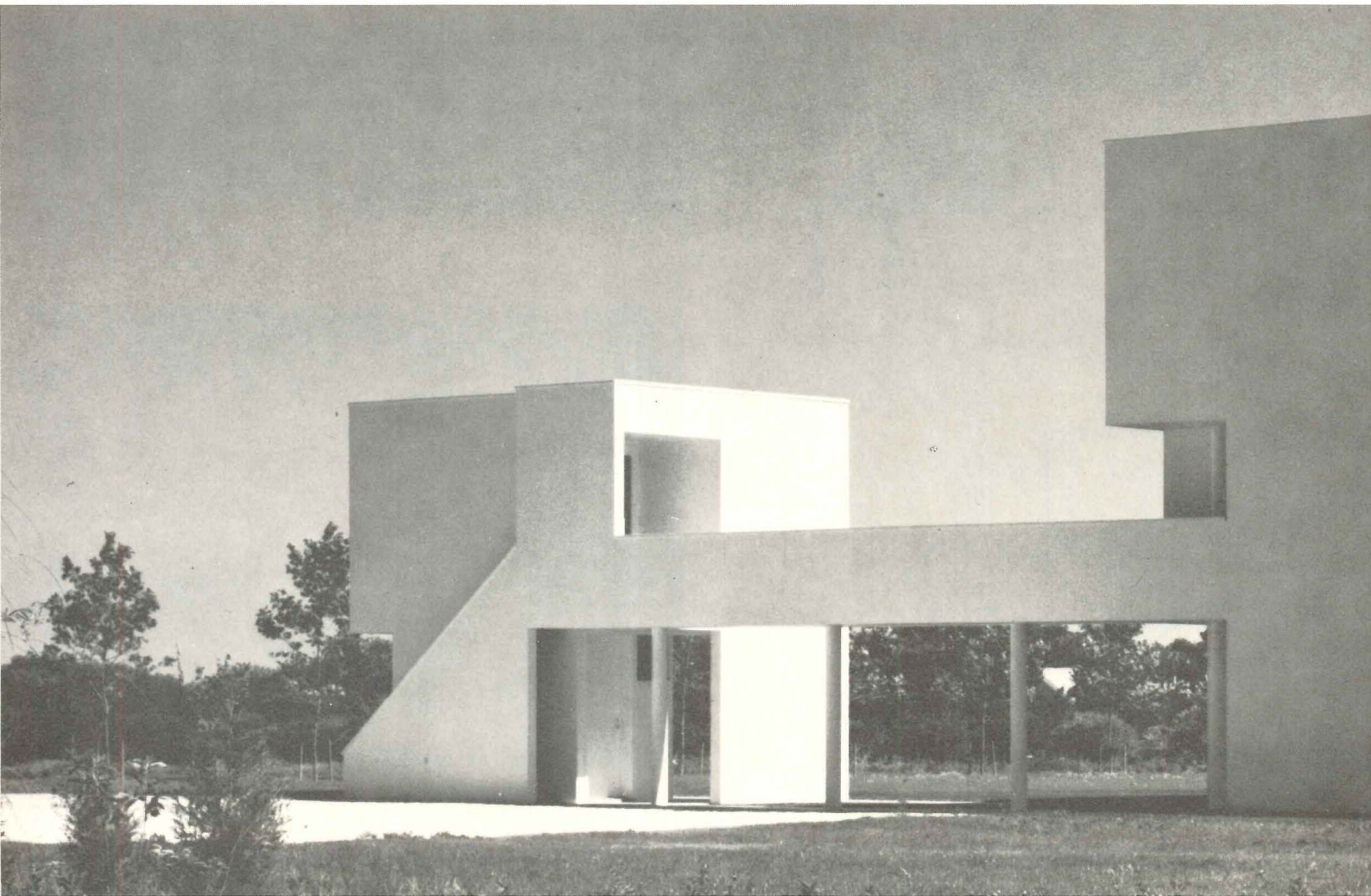
GROUND FLOOR PLAN

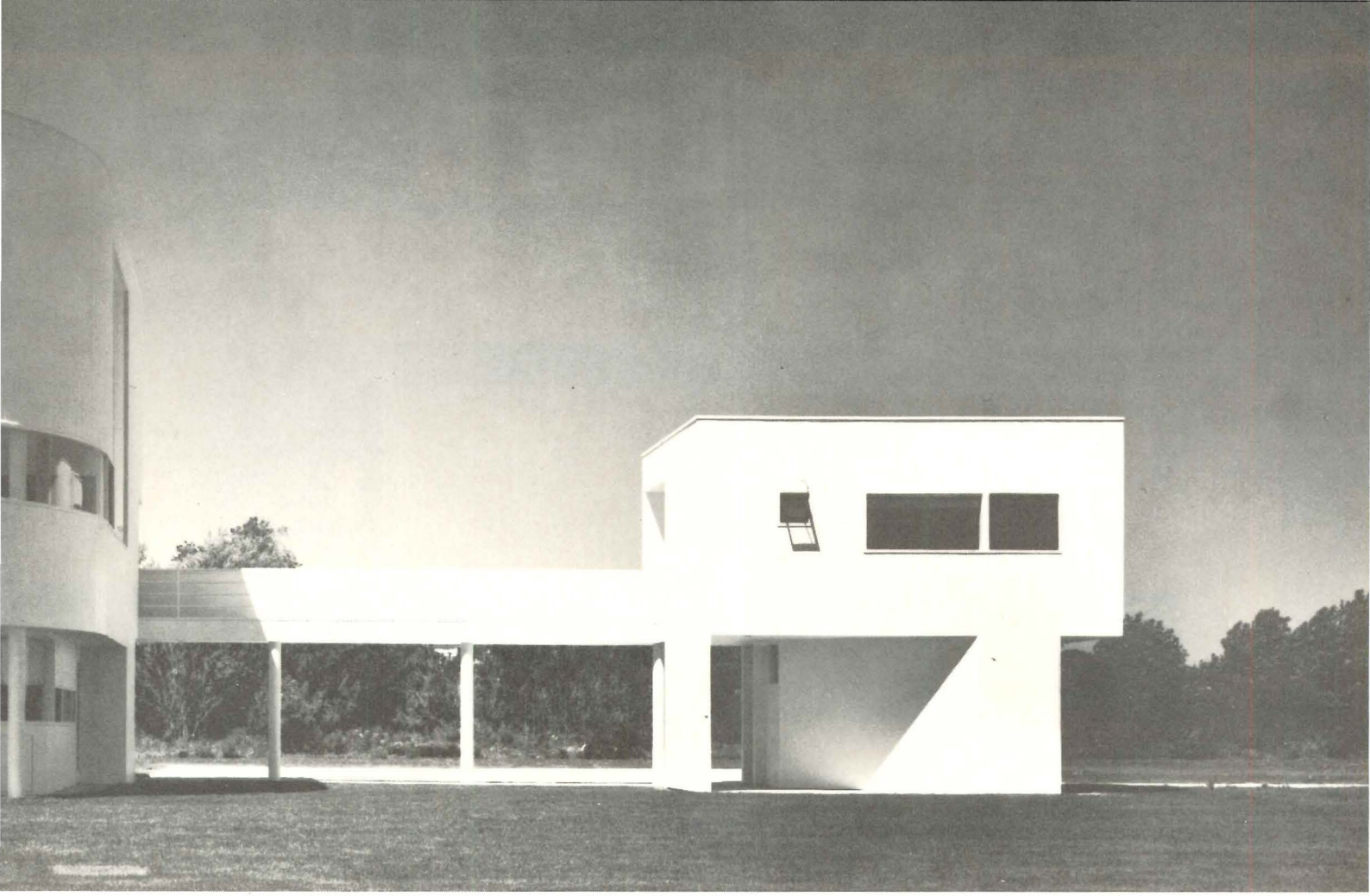
The Salke house, the first of the four year-round beach houses in the cluster, initiated the full kit of parts that the architects used throughout the complex (see text) as well as the enclosure of the quadrangle-like space between the houses. The cluster makes predictions about the future of community planning and the problems of aesthetic density at the beach. Upstairs, the living room of the Salke house — a glossy-painted, super-striped, nude-bulbed contemporary space — looks out over a deck to the changing ocean beyond.

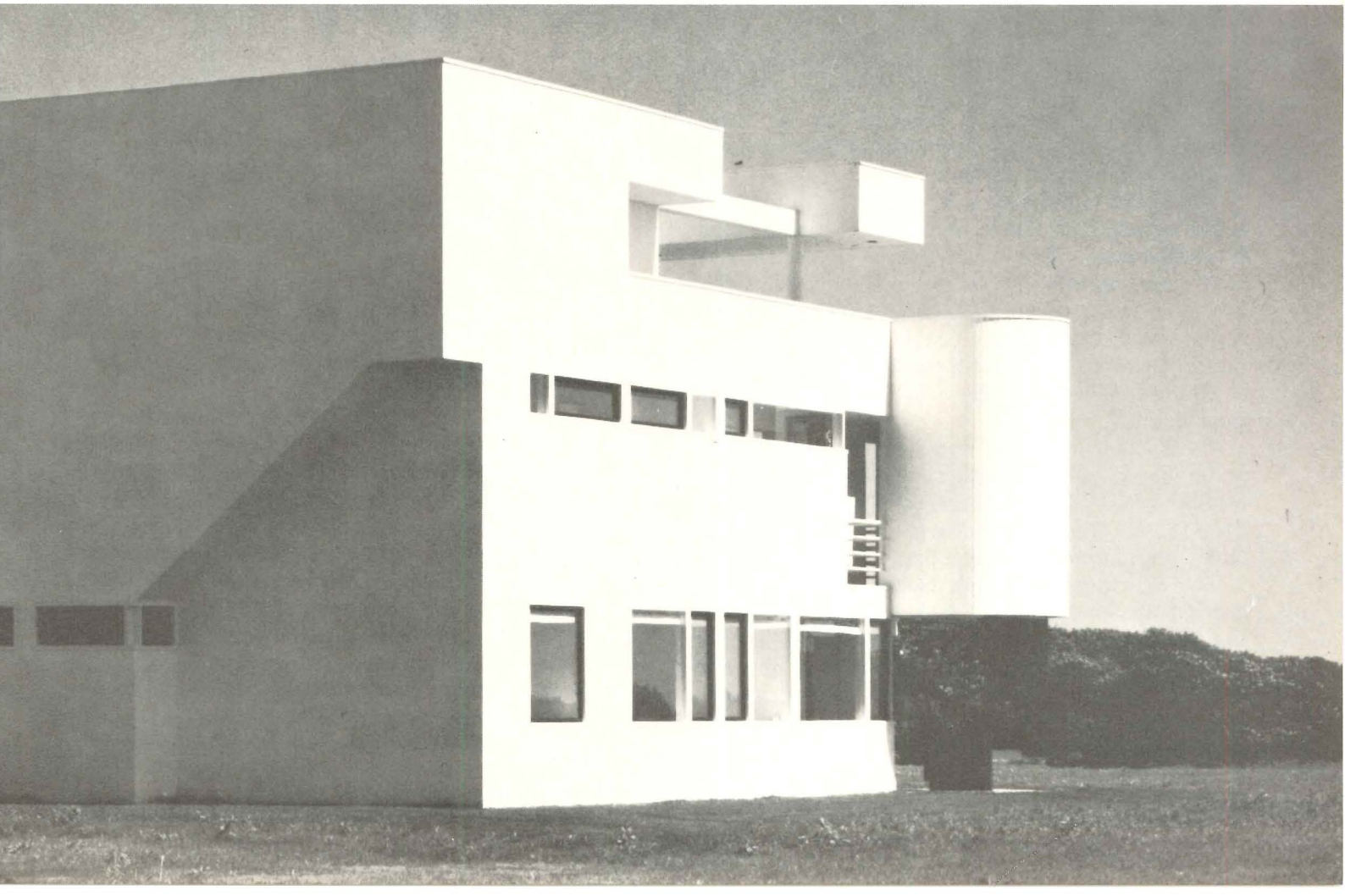




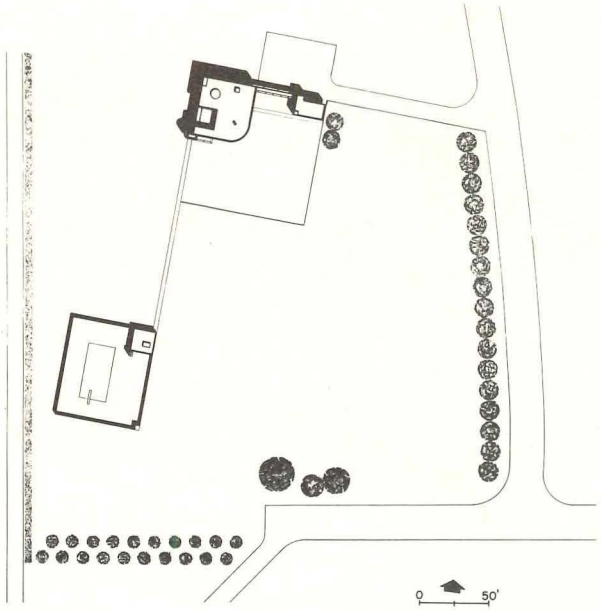
VILLA SALTZMAN







The purity of white on the exterior, counterpoints the natural changes of color and light in the surrounding landscape. Below, site plan shows the relationship of swimming pool to house. The pool area includes a bath house with dressing rooms, showers, a small kitchen and storage space. A white-painted wood fence surrounds the area so that it is not seen from the road.



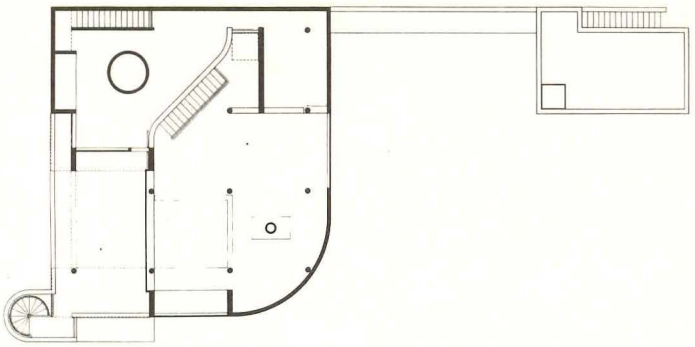
A white cubistic cluster that stands as pure, undecorated form in the best Corbu tradition, the Saltzman house is expressed, not as an extension of nature, but rather as a counterpoint to nature. Divorced from the ground, it rises sparkling against the sky in a precise, geometric silhouette.

The house is located on a flat open 3-acre plot on Long Island, New York, about a quarter of a mile from the ocean. The entire site is visible from the public road on the east, and from the access roads to the adjacent properties. At first glance difficult to comprehend, the house is organized to obtain maximum benefit of the view toward the water, as well as the open fields along the water's edge toward Montauk Point.

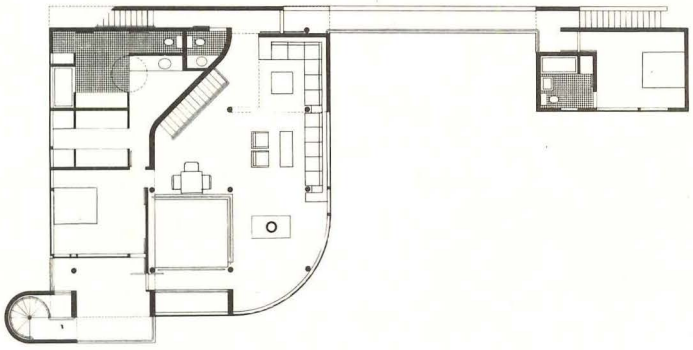
The house consists of two sculptural parts — the main "block" and a detached guesthouse. An outside bridge, raised one-story high by structural columns, links these units and permits the ground to continue under and through the building.

Exterior façades of both blocks are developed in depth with receding voids and an occasional projection breaking up the "pure prism" quality. The southeast corner of the main block is recessed, as are all entrance areas and balconies, while large glass areas appear to recede deep into the interior. An exterior steel spiral staircase, which connects the three levels of the house, is treated as a single element. It projects boldly from the west side of the main block and forms a sculptural counterpoint to the severe, rectangular geometry of the structure. But the basic overall form remains strong and simple; indeed, it looks relatively flat-sided from a distance, while at closer range the pure prism becomes a many faceted crystal with intriguing changes of light and shadow.

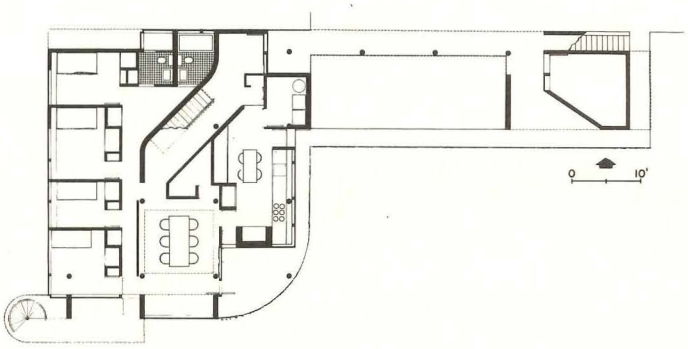
Among the client's specific requests were bedrooms so small that their two children would be out in the sunshine, a kitchen big enough to breakfast in, a



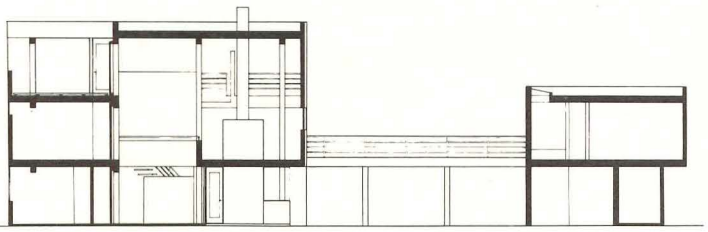
UPPER LEVEL



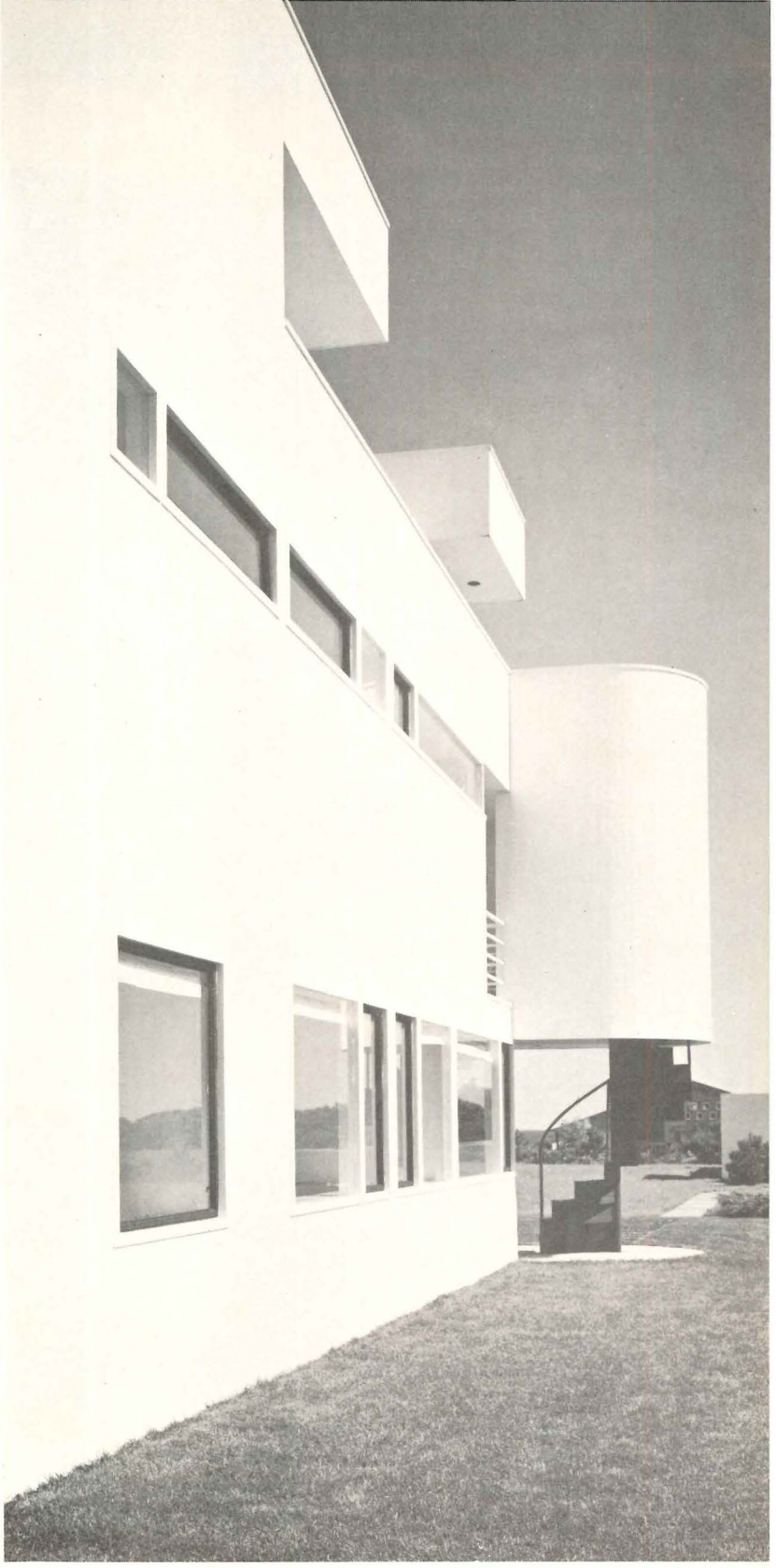
MIDDLE LEVEL



LOWER LEVEL



SECTION



dining room that could seat 14 persons, several exits to the outdoors, and loads of closet space.

Not unlike Le Corbusier's spatial concept, Architect Meier separated and arranged interior functions to provide vaster, more noble spaces for major living areas. Interlocking spaces with different but related ceiling heights at the middle and upper level of the house contrast to the ordinary shapes and ceiling heights of service rooms at ground level.

The house is entered from a colonnade along the east side of the main block. The ground level contains four children's bedrooms (two for guests) lined up along the west side, a dining room that soars 25 ft through an open well, a kitchen, and a laundry room. A small porch adjoins the dining room while a deck joins the children's bedroom area.

The middle level contains the master bedroom and living room. While the bedroom is small to give a sense of privacy and enclosure, a glass wall extends it toward the horizon. An open well in the living room exposes the dining room below, while a bridge crosses the well to link the living room with a sundeck ad-

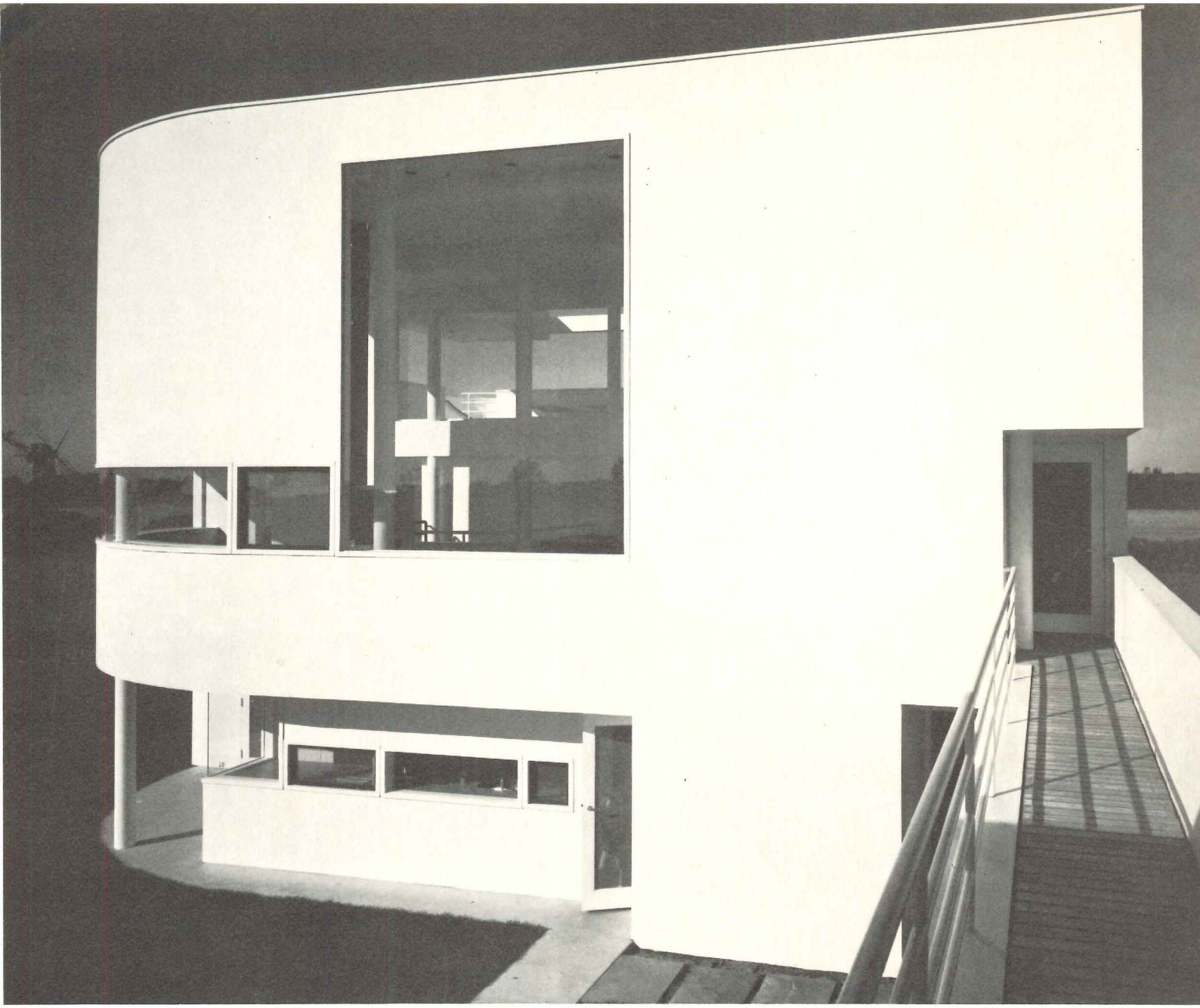


Photo shows the east side of the main house. The raised bridge crosses from the living room to the guesthouse, which contains a skylighted guestroom at the upper level and storage space at ground level.

joining the bedroom. The vastness of the space is counterbalanced by an intimate cove area formed by an overhanging study at the upper level.

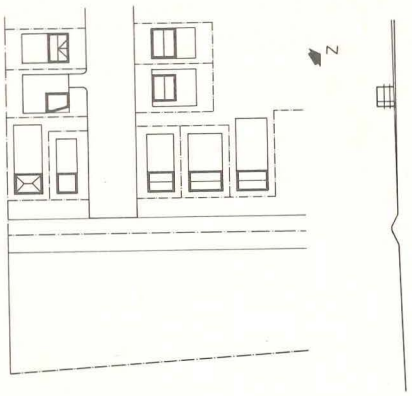
The third, or upper level of the house — really a mezzanine that overlooks the living room and further, through the open well to the dining room — includes a skylighted playroom, a study, and a deck from which miles of the Atlantic shoreline is seen. There are no windows in the study so that the sense of enclosure is retained. On the other hand, interior spaces open onto other interior spaces, which, in turn, open to the outdoors.

The structure of the house is a coordination of two systems that are again reminiscent of Le Corbusier's structural techniques. But while Corbu brought out the logic of steel and the brutalism of concrete, Meier employs a wood "screen" on a steel frame to express the "free façade." The wood-bearing wall and framing system is used for the service, or more enclosed portion of the building, while white-painted steel columns, 12 ft on center, support the open living spaces. The columns permit Meier the utmost freedom in placing partitions and other spatial divisions. Furthermore, because some of the exterior walls were no longer loadbearing, he was able to open or close the façade at will to take advantage of the views and satisfy aesthetic requirements, and to control the way in which light enters the space.

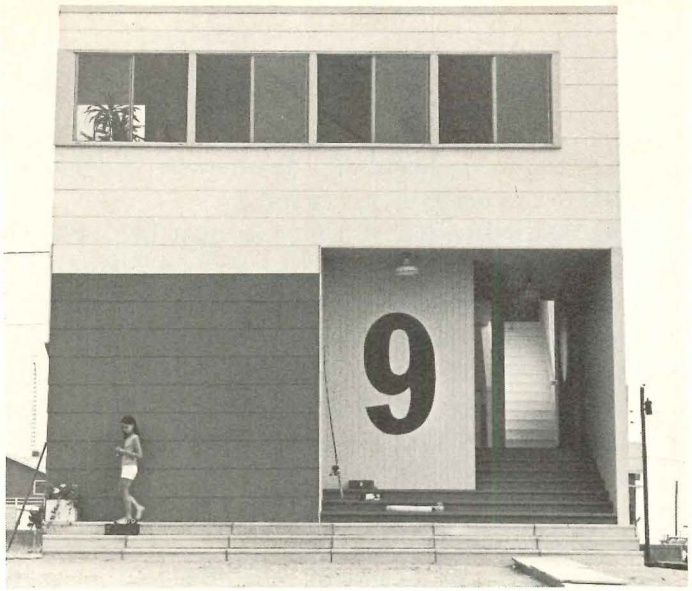
Those critics who feel that structural purity is the end-all and be-all of architecture, will question Architect Meier's structural integrity. Through his own means, however, Meier has achieved a romantic floating quality, an elegance seldom seen in Le Corbusier's brutalist efforts.

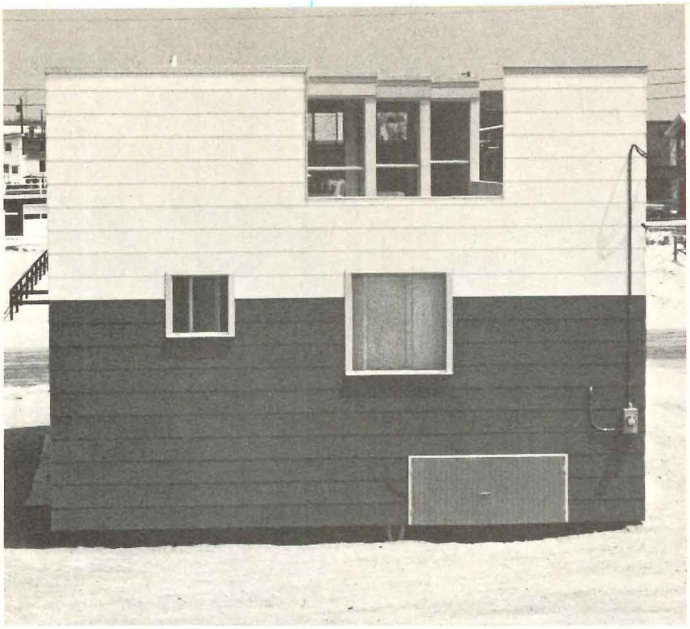
HOUSE FOR MR. AND MRS. R. SALTZMAN, Long Island, N.Y. **Architect:** Richard Meier; associate Carl Meinhardt. **Site:** Flat open 3-acre lot with an ocean view. **Program:** House for a couple with two children. **Structural System:** Wood-bearing wall and framing system for the enclosed portion of the building, coordinated with a steel columnar structure for open living spaces. **Major Materials:** Glass and white-painted vertical wood siding. **Interior Designer:** R. Saltzman. **Consultants:** Wald & Zigas, mechanical; William Atlas, structural. **General Contractor:** Vollerath. **Photography:** Ezra Stoller Associates.

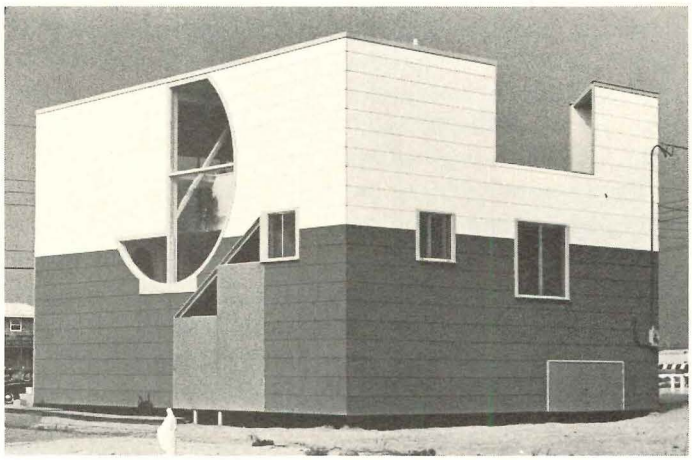


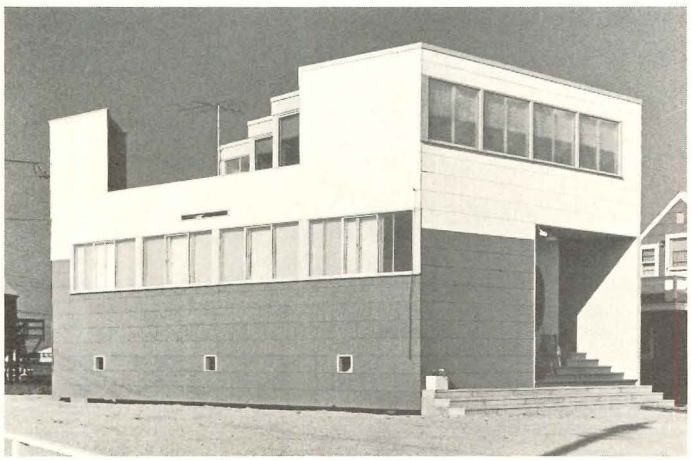


Ordinary As Artform





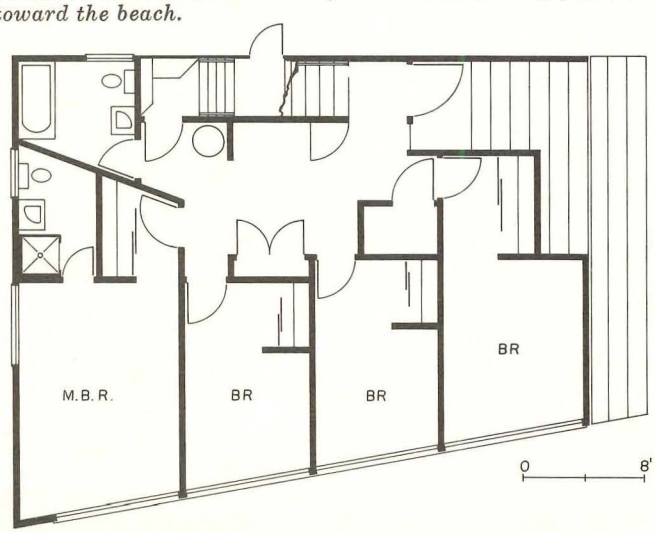




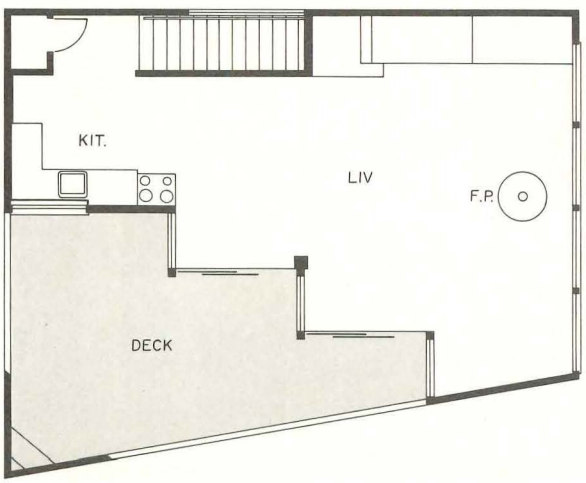
Distinguishing between background buildings and foreground buildings, in the past several years, has categorized architects as well as their designs. Commonly, foreground buildings have been distinguished as those designed to stand out from their surroundings and to make prominent monuments of themselves and of their architects. Those called background buildings, on the other hand, attempt to blend in with their surroundings, usually by employing current design motifs, and attempt to make contextual continuity of themselves and of their modest designing. By some inexplicable maneuver, Venturi & Rauch have worked a turn on this distinction by designing modest background buildings that may make prominent monuments of their architects.

With the Lieb House, on New Jersey's Long Beach Island, Venturi & Rauch turn the self-effacing social and neighborly aim into an offense tactic. Not content merely with using current design motifs as their material, the architects have, instead, employed the boxiness of the conventional beach house along with a 1940s two-toned coloring of its asbestos shingle sheathing. Contradictorily, the Lieb house is both unprepossessing and prominent at the same time be-

Last summer, on New Jersey's Long Beach Island, architects Venturi & Rauch built their first design illustrating Robert Venturi's theories on "Ordinary Architecture." The plans show the east wall of the house angled or, as they say, "inflected" toward the beach.



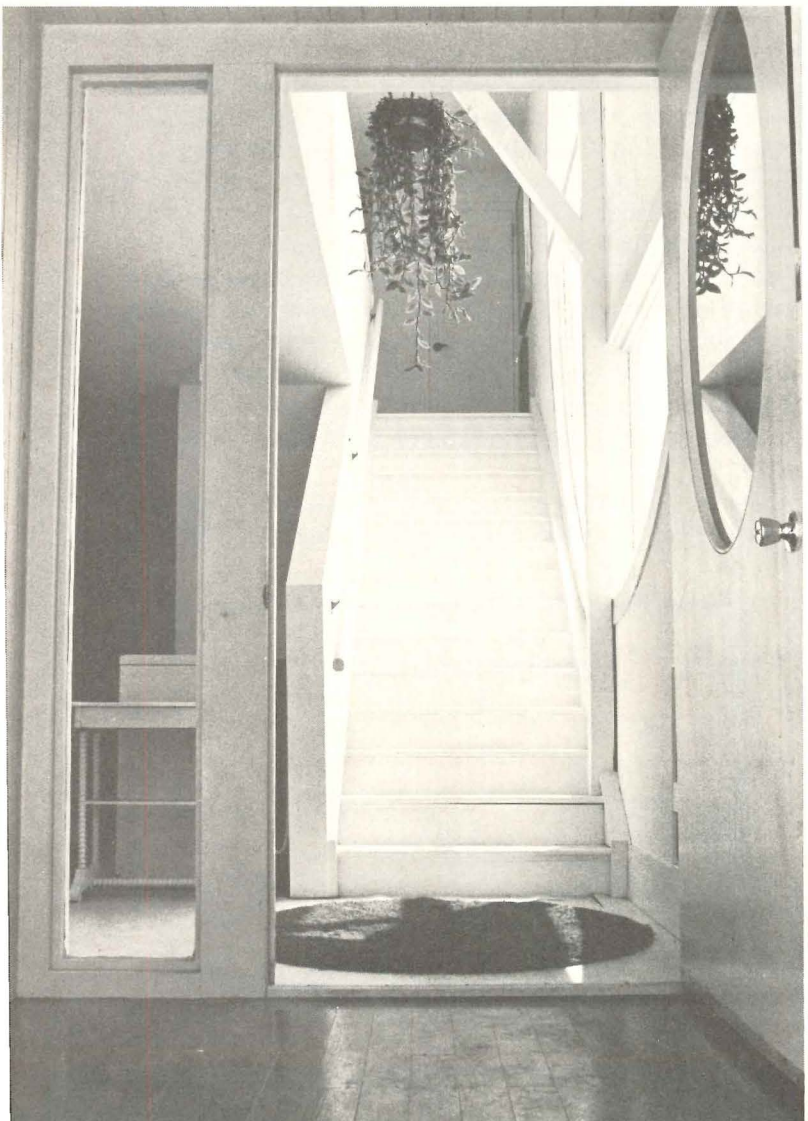
FIRST FLOOR



SECOND FLOOR



"The entrance stair, contradictorily," says Robert Venturi, "goes across the whole front of the façade, even though the door is only a third of the front. Once you get within the house, the stair is somewhat smaller. Finally, it continues up at the more intimate and smaller interior scale. So there is a sense of the transition from the outside big scale to the little scale." The address is graciously lettered on the front of the building, one may safely assume, so that everyone is able to see it. The harmoniously shaped light of the entry door, however, should not be read as 90 or even 9°.



cause it uniquely raises the anonymous "builder's" house into the realm of an art form.

However, only a few allusions to what Robert Venturi calls "high-fashion architecture" are included in the design: the form of the fragmented semi-circular window on the west side (already high fashion in Venturi & Rauch's own Kahn-Philadelphia tradition) and the scale of that window and of the address number "9" (still high fashion in the super-scale revolution).

As for the other elements of the house, what some have come to call the Cult of Ugliness in architecture (there is, after all, a cult of aggressive ugliness in clothes fashions today), Architect Venturi has, with a typical but always unexpected inversion, singled out as the Cult of the Ordinary. He has written on this outlook in connection with New York's Co-op City (p. 64, FEBRUARY 1970 P/A) and P/A's Design Awards entries (JANUARY 1970).

The aesthetic theory behind this approach appears "complex," "contradictory," and "paradoxical," to use some of Robert Venturi's own words. "One of the main things considered in doing this building was the site and setting. Its setting, he explains is very, very ugly — a residential seashore resort of repetitive cheap cottages. And the landscape has no features of its own to cover up the architecture — like foliage and trees. The real environment of the house is the telephone poles and wires and the constant rhythm of these little houses plopped on their sites.

"So we made a building that was not trying to be pretty in this landscape but which was being, in its way, ugly like the landscape and, we would hope in a funny way, making the landscape less ugly by not inserting in it a contrasting pretty element. So this building is purposely not pretty, not refined, not sensitive, not delicate, not full of high-fashion architectural sensitive articulations of little wings popping out and other lovely little structural refinements.

This building purposely is a kind of bold little ugly banal box; it has a boldness of scale and a kind of crudeness, if you will, like the real landscape of no paving, rigid gridiron, and especially the grid of wires that stand out more than usual, because of the barrenness. So it is ugly and ordinary."

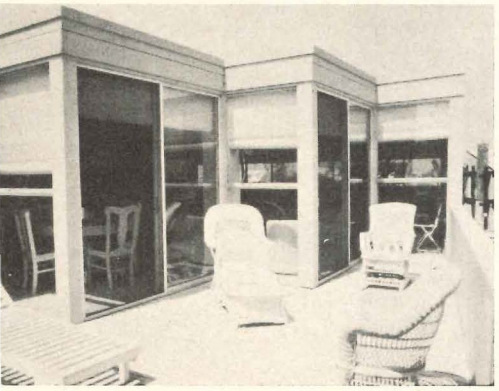
Critics can be puzzled by this explanation, for the Lieb house is the only box in a neighborhood of gable-roof structures. If one were using all the "ordinary" elements of the beach house and of the surrounding neighborhood, he would surely not put in a big bold box to make it fit in like a background building. To the ordinary eye, the Lieb house appears inordinately prominent.

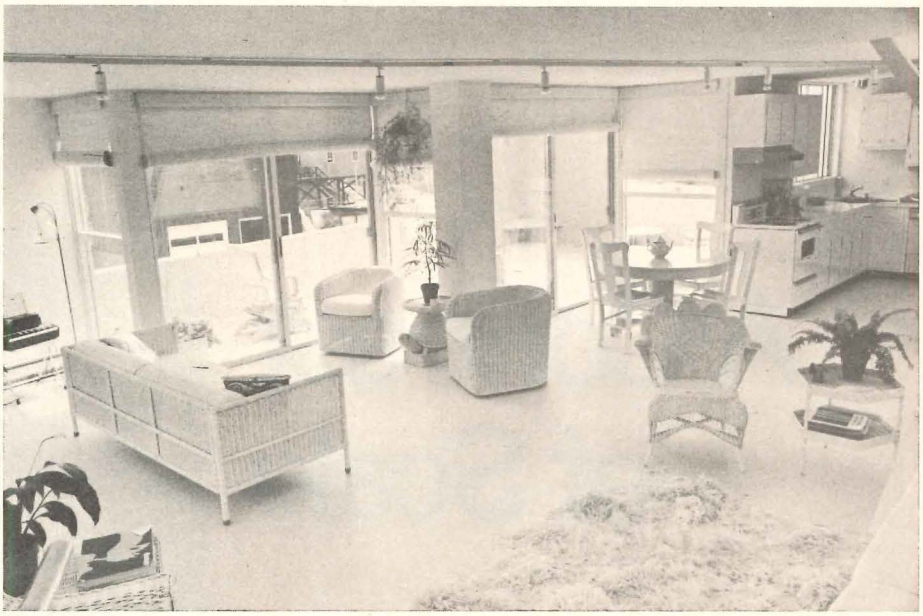
"I don't like to use the phrase 'background building'," Architect Venturi counters, "except when there is a cathedral towering above a lot of little buildings."

These dualities and paradoxical contradictions



The living area on the upper level gains a view of the beach, both from within the all-white room that the architects feel has been furnished sympathetically by the Liebs and also from a sheltered outer deck. The setbacks of the glass wall onto the deck bring in more light to the interior space and also reiterate the setbacks of the entry façade.





naturally appeal to the Venturis as aestheticians, and they juggle them almost to the point of mesmerizing doublethink.

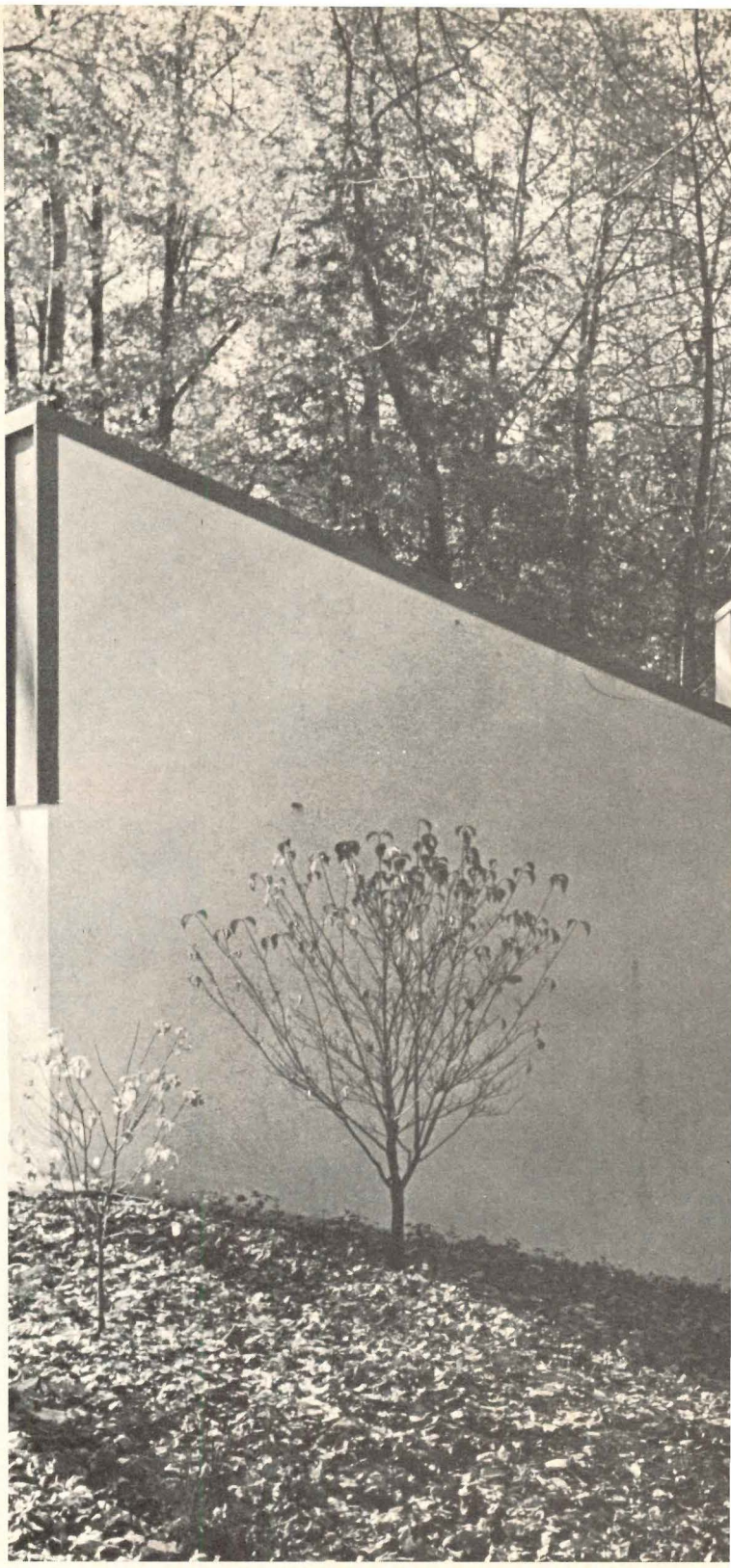
"The Lieb house," they explain, is ordinary and extraordinary at the same time. It is like the landscape and not like the landscape — ugly and beautiful. It is the tension between these opposites. We are saying it is like everything else; yet it isn't like everything else, we admit that. It is like everything else in the way that the Pop artists make something like a Campbell's Soup can. It is like, but isn't like. See what I mean?"

The bold box is achieving on one level, symbolically, as the poles are," Robert Venturi concludes.

So Venturi distinguishes between the formal "design" aspects of the surrounding buildings and the totality of the environment — symptoms as distinguished from causes. Paradoxically, the Lieb house fits in with its surroundings because it has the symbolical scale of a powerhouse.

However constantly intriguing the mental agility of Robert Venturi's aesthetic theory, the focus of our attention here is on the architectural product of Venturi & Rauch, Architects. The Lieb house is a cool and comfortable, perfectly workable, no-nonsense house. One enters downstairs facing the washer-drier and arrives at the living room through the kitchen, but those are the kinds of relationships to daily realities that make the house a functional as well as an artistic expression of the "ordinary." Is that a good thing? The question is superfluous. The quest of art is no longer to show us the beauties of nature but to show us the realities and richnesses of life — to show us new visions of existence. In that, the Lieb house is a very special work in the new art of discovering the ordinary.

Photos: Steven Hill



A Contrast of Scale

The Oritsky house, designed by Architect Frank Schlesinger, presents a massive, almost factory-like façade to the street, yet hides an intimate courtyard — creating a tense though enchanting contrast of scale. Perimeter walls achieve a rugged, sculptural quality that is the result of pushing interior storage out beyond the plain of the exterior. The walls are punctuated with deeply recessed spaces, carved out in rectangular and narrow slot shapes that accommodate windows and further emphasize the massiveness.

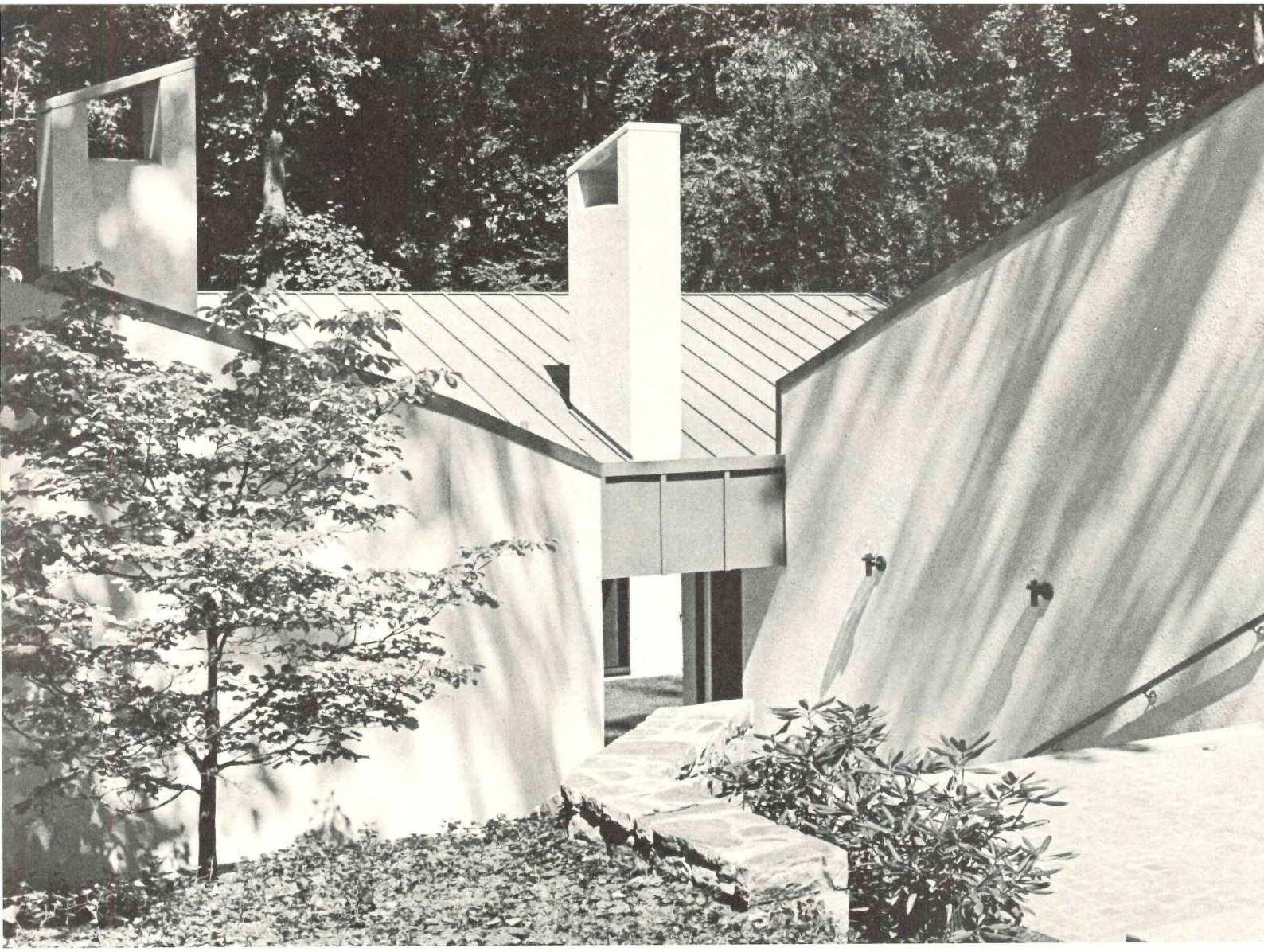
The site is a heavily wooded lot approximately 150 feet square, at the corner of a residential street in Reading, Pennsylvania. A 20-ft change in topography from the street corner to the interior of the site forced two previous owners to sell the lot because it was "unbuildable."

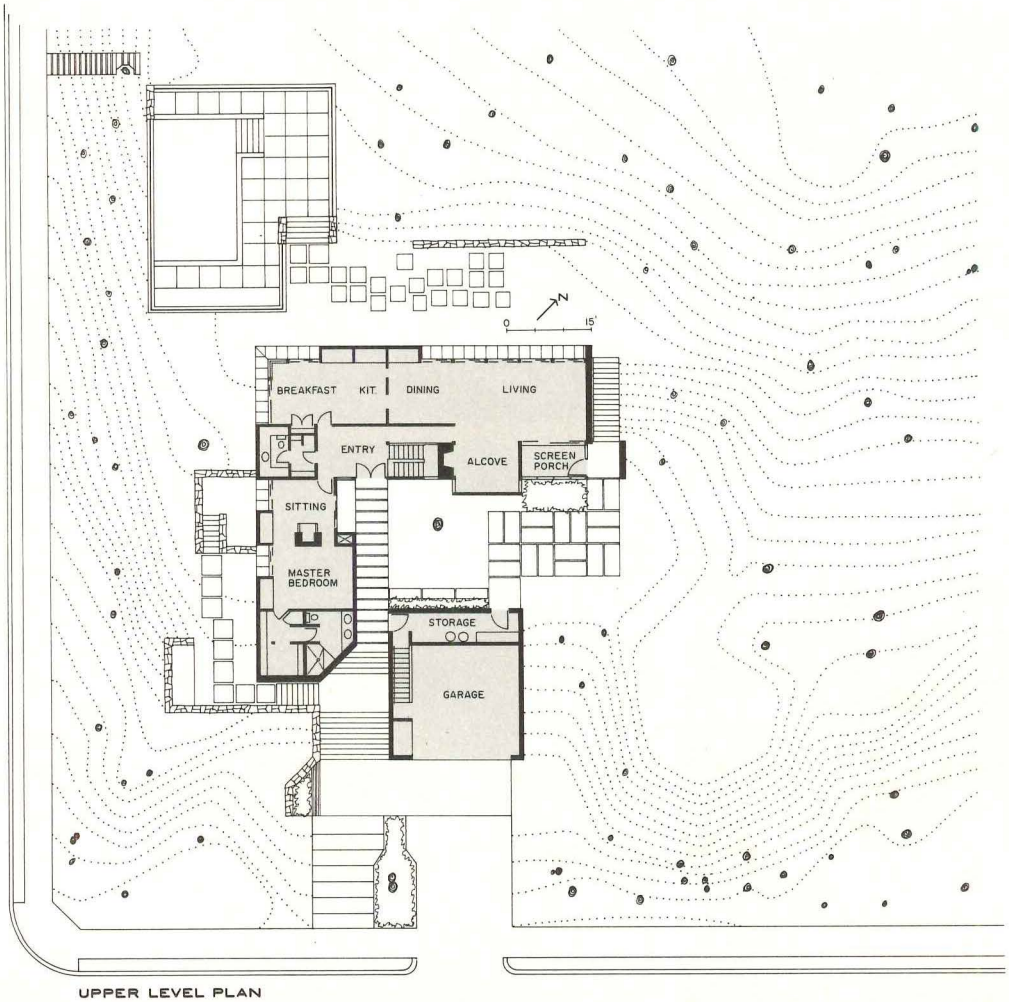
Architect Schlesinger took advantage of the site by organizing a "C"-shaped plan around the courtyard, nestling it into the natural bowl formed by the topography, then stepping the entire complex down the slope. Thus, the garage (bottom arm of the "C") is at street level at the top of the slope; the parents' sleeping–sitting area (side arm of the "C"), major

living spaces (top arm of the "C"), and the courtyard are stepped down almost a full story; the lower, or children's level is cut into the bottom of the slope at the back side of the house. Behind the house at the lowest point of the property is a reflecting pool and banked garden developed from a natural spring (see site plan).

The "C"-shaped and stepped-down organization of the structure shields the courtyard from the streets and nearby houses. It is further screened from the interior of the house — major glass areas are located along outside perimeter walls in order to orient the

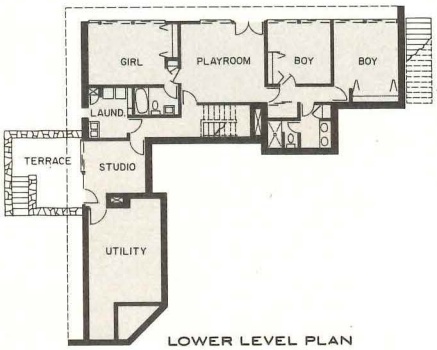






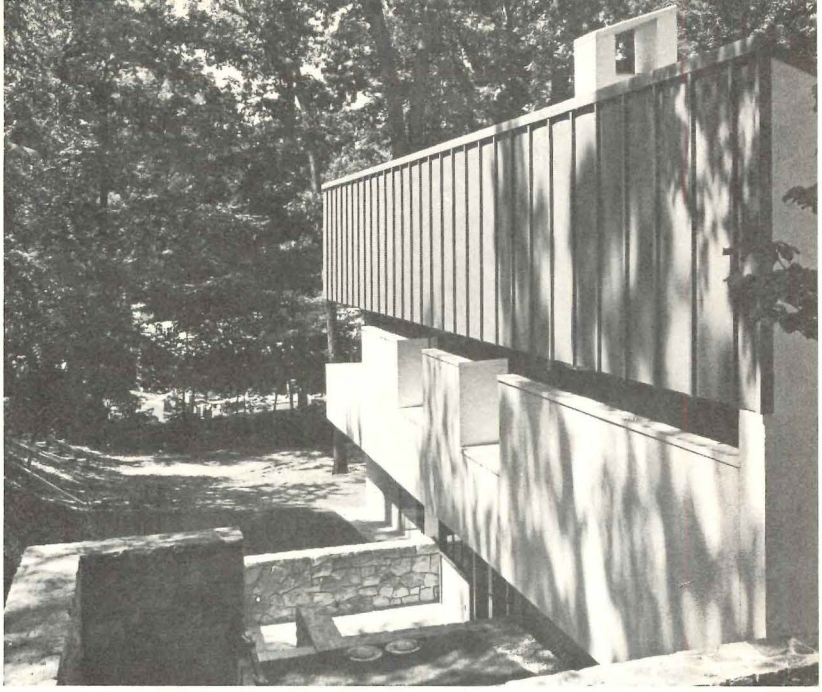
UPPER LEVEL PLAN

Stone masonry walls provide earth retainers for terraces and private sitting areas dug into the slope. While major sloped areas are landscaped with ground covers, grass areas are limited to the courtyard and small lower terraces on the east and back of the house.



LOWER LEVEL PLAN

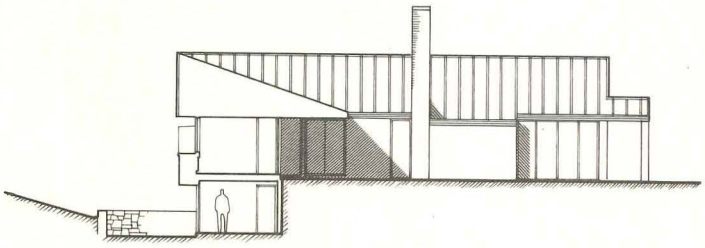




Wood floor joists cantilevered along the perimeter of the upper level support niches for storage space and provide a continuous chase around the exterior of the building for air supply ducts. Return ducts are housed in the attic space of the roof overhang.



SECTION THRU LIVING ROOM

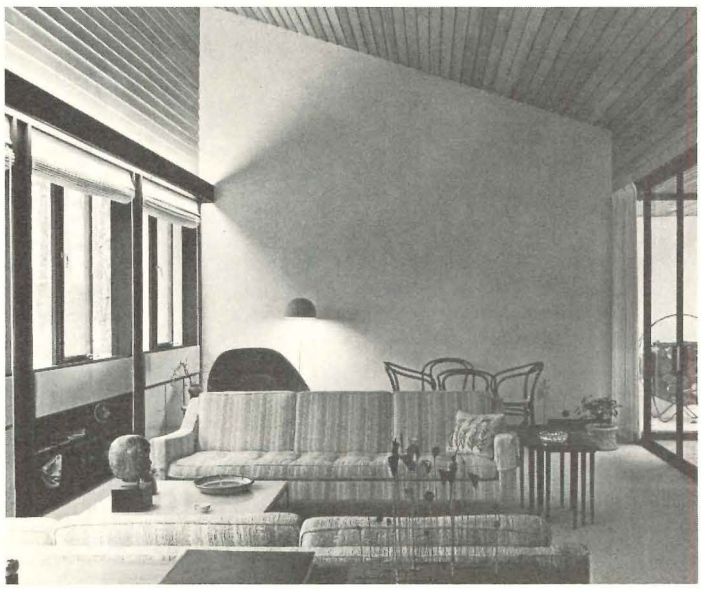


SECTION THRU SITTING ROOM

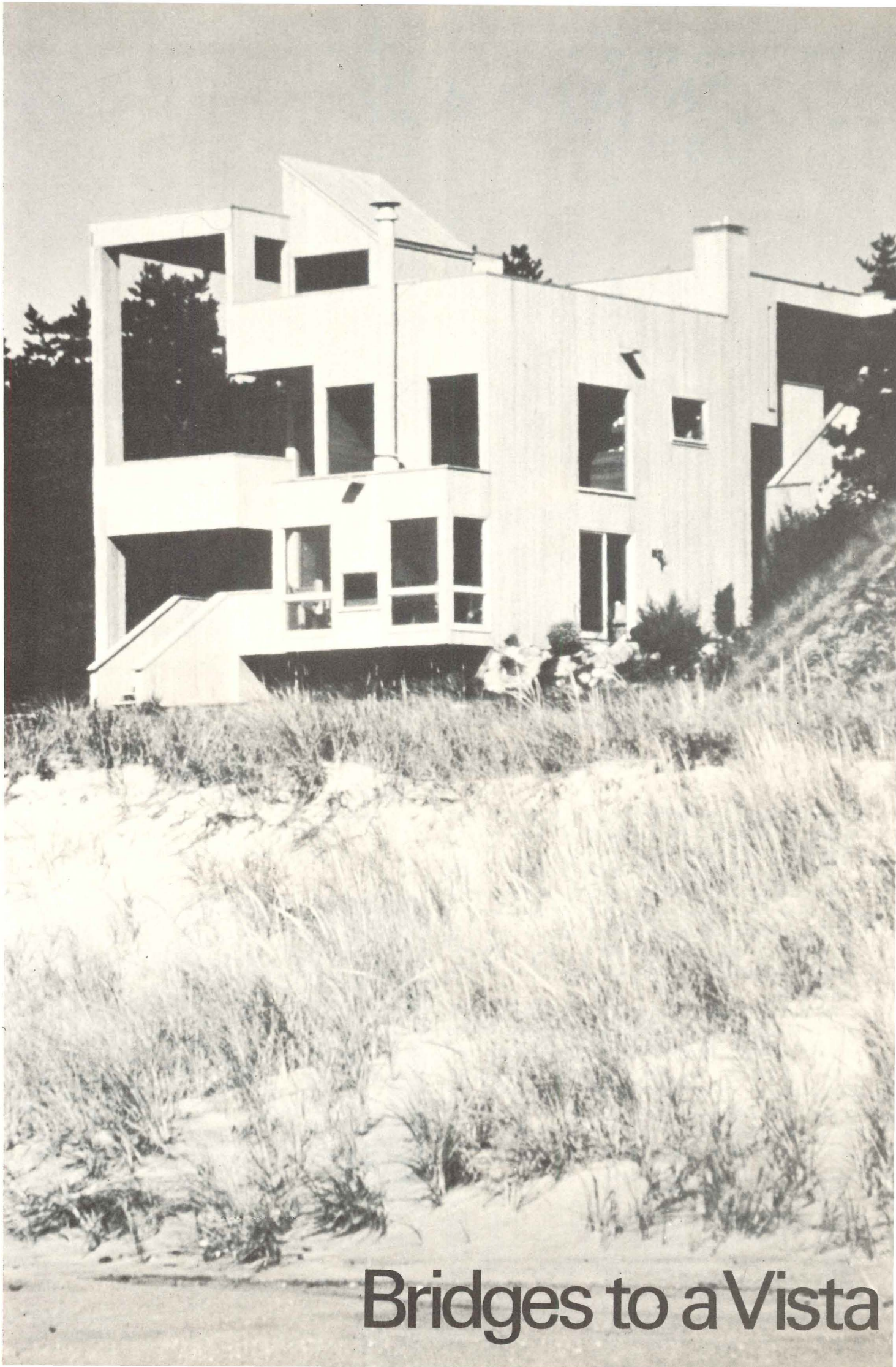
interior toward the surrounding woods rather than to the courtyard. A roof-covered walkway passes through the courtyard, which also serves as an entry court, from the street side of the building to the main entrance. To enter the house, outside stairs lead from the driveway down to a roof-covered opening between the house and garage. A corner of the house is diagonally cut off to form a funnel-shaped passageway that directs the visitor to the front door.

Because of the low elevation of the house in relation to the adjoining streets, Schlesinger has treated the roof as the building's major formal element. Covered with batten seam, terne roofing painted dark blue-gray, it is sloped inward to the courtyard to emphasize the feeling of enclosure and privacy. Combined with pure white stucco surfacing of exterior walls, it produces striking texture and color contrast.

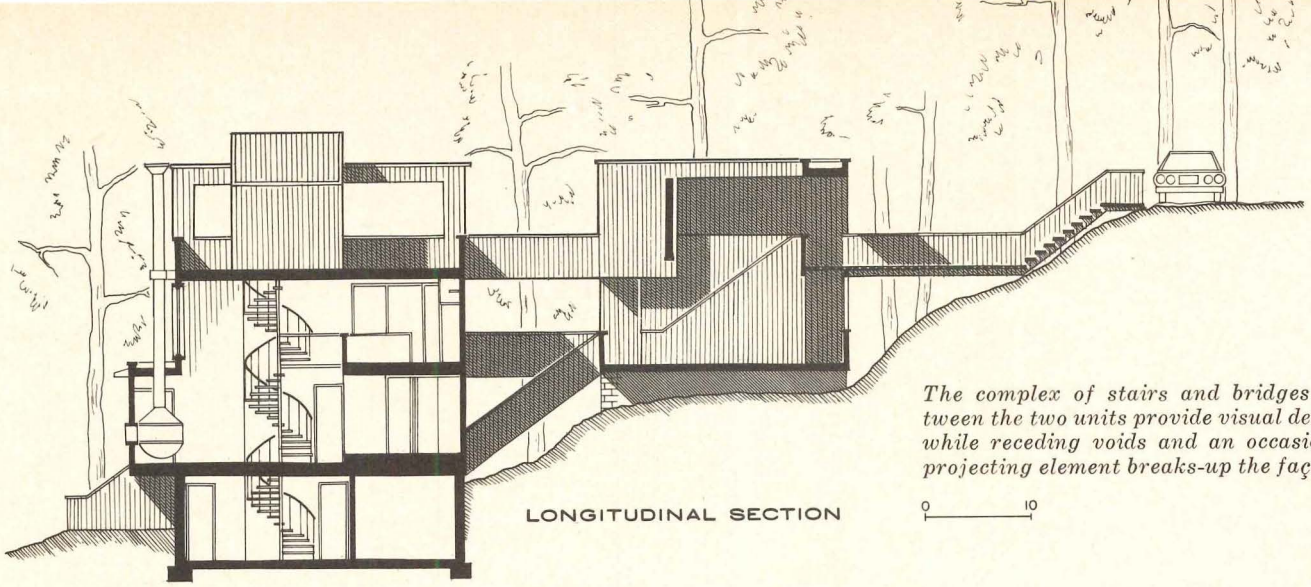
RESIDENCE FOR MR. AND MRS. H. ORITSKY, Reading, Pennsylvania. **Architect:** Frank Schlesinger. **Program:** Accommodations for a family of five with a small studio for the mother, playroom for the children, and bedroom-sitting area for the parents. **Site:** A sloped heavily wooded lot on a residential street. **Structural System:** Block and wood frame walls, wood frame roof. **Major Materials:** Roof is covered with batten seam, terne roofing painted dark blue-gray. Walls finished with white stucco. Cost: $112,000 ($29. per sq ft). Landscape Architect: Jeanne Schlesinger. **Consultant:** Vinokur & Pace, mechanical. **General contractor:** Edgar Zerbe. **Photography:** Reginald Richey.



The sloped ceiling in the living room is surfaced with natural cedar wood strips.



Bridges to a Vista



The complex of stairs and bridges between the two units provide visual depth, while receding voids and an occasional projecting element breaks-up the façade.

LONGITUDINAL SECTION

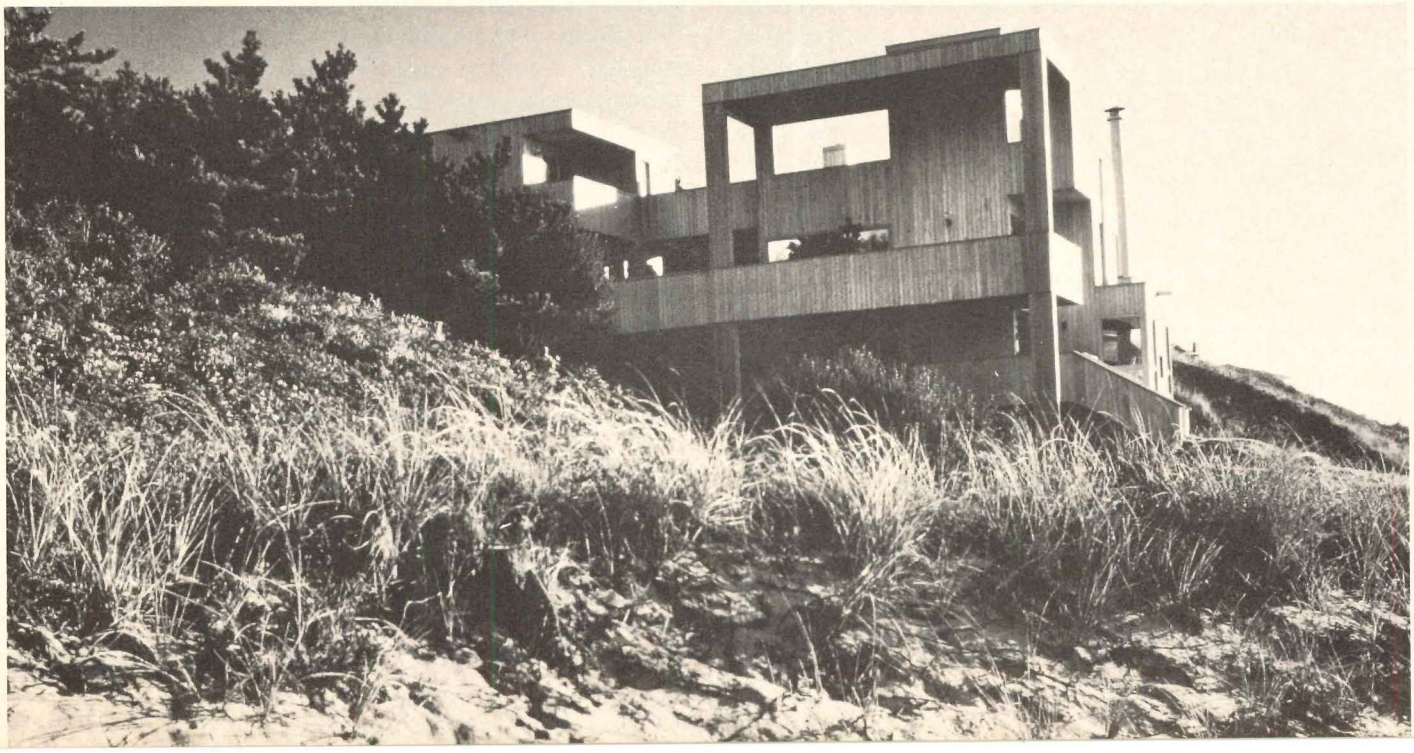
0 10

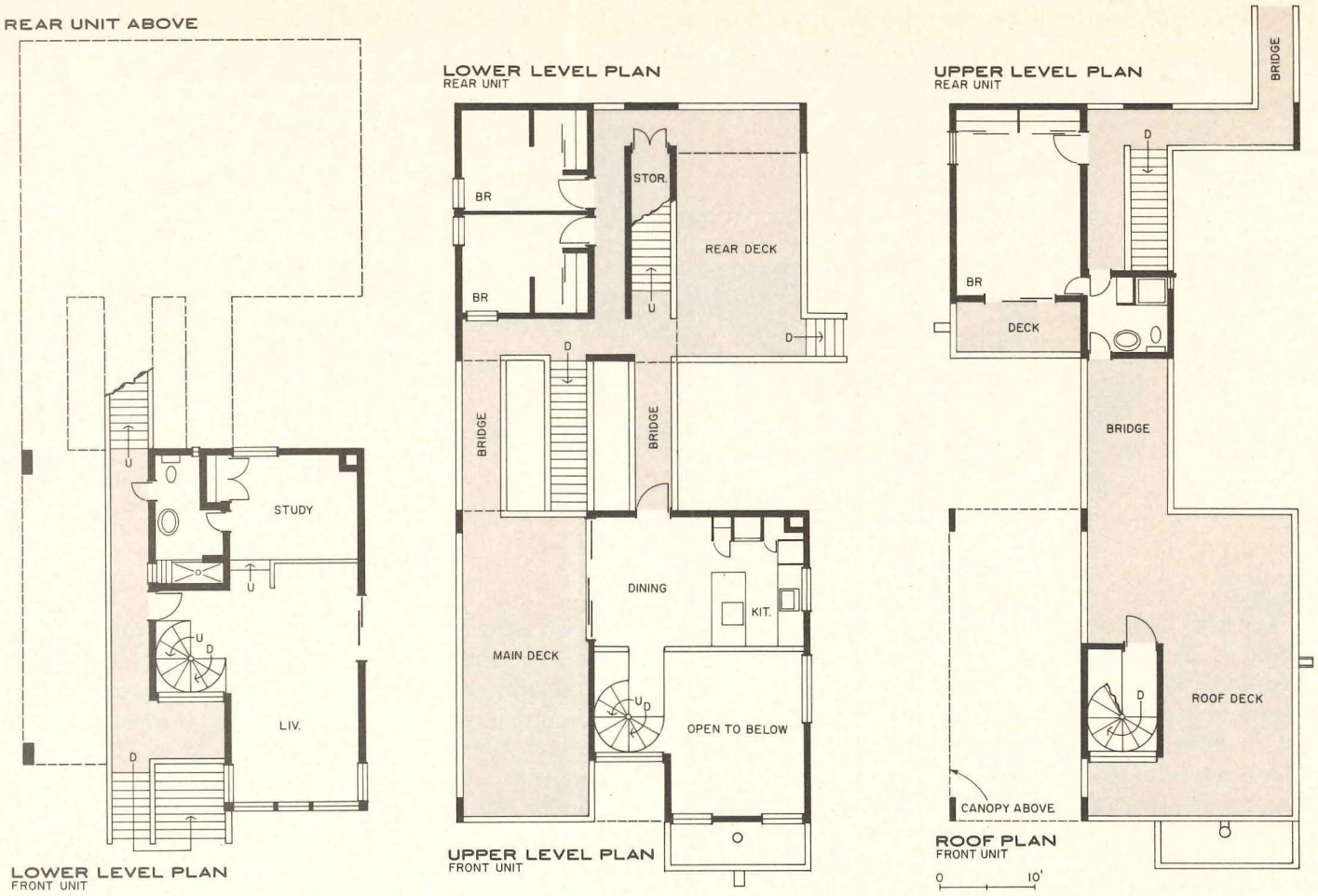
When Architect Richard Kaplan accepted the task of designing a beach house on Long Island's Montauk Point, the site — a dramatic 40-degree cliff overlooking the Atlantic Ocean — presented problems more difficult and challenging than he anticipated. The one-half acre plot was only 72-ft wide. Local zoning required the structure to be set back a distance of 20 ft from both sides of the property line, thus, the maximum width of the house was 32 ft. Local zoning also restricted the maximum height of the structure to 2½ stories, but not to exceed 40 ft.

With a budget of $40,000, the client wanted 4 bedrooms, 2 baths, living room, dining room, and kitchen, as well as ample outdoor space. "The major challenge then," says Kaplan, "was to take maximum advantage of the view and site, while squeezing all the program requirements into a house with narrow ocean frontage on a steep slope. The house, therefore, had to step down the cliff."

The house contains 2020 sq ft of enclosed space with an additional 1600 sq ft of open deck. Though at first glance it appears as a single enclosed structure, it is actually two self-contained 2-story units linked by a series of outside stairs and bridges. The upper (rear) unit contains the master bedroom, bathroom, and a small private deck at the upper level, and two identical bedrooms at the lower level. The lower (forward) unit, stepped down the cliff one story, contains the kitchen and dining room at the upper level; at the lower level is a study, a bathroom, and two-story high living room. The horizontal offsetting of the two units creates a sheltered rear deck tucked into the hill between the units, an open 2-story high canopy-shaded front deck overlooking the ocean, and allows a view of the ocean from the bedrooms. The vertical offsetting of the two units permits the roof of the front unit to be used as a sun deck. Kaplan has also aligned the rooflines to integrate them visually.

The house is entered from the top of the cliff by a partially covered bridge adjacent to the upper level of the rear unit. An outside stairway leads to the lower level and to the sheltered rear deck. A bridge then crosses to the kitchen-dining room, and it is





from this point, the upper level of the forward unit, that a visitor first enters the interior.

The kitchen and dining room, really one space divided by a cooking counter, offers some of the best ocean views; sections of the seascape appear like murals through strategically placed windows facing many directions. Sliding glass doors along the west wall open the space to the canopy-shaded front deck. A spectacular, white-painted, steel spiral staircase extends up through a shed-roofed tower to the sun deck on the roof of the forward unit; a bridge joins the deck to the master bedroom at the rear unit.

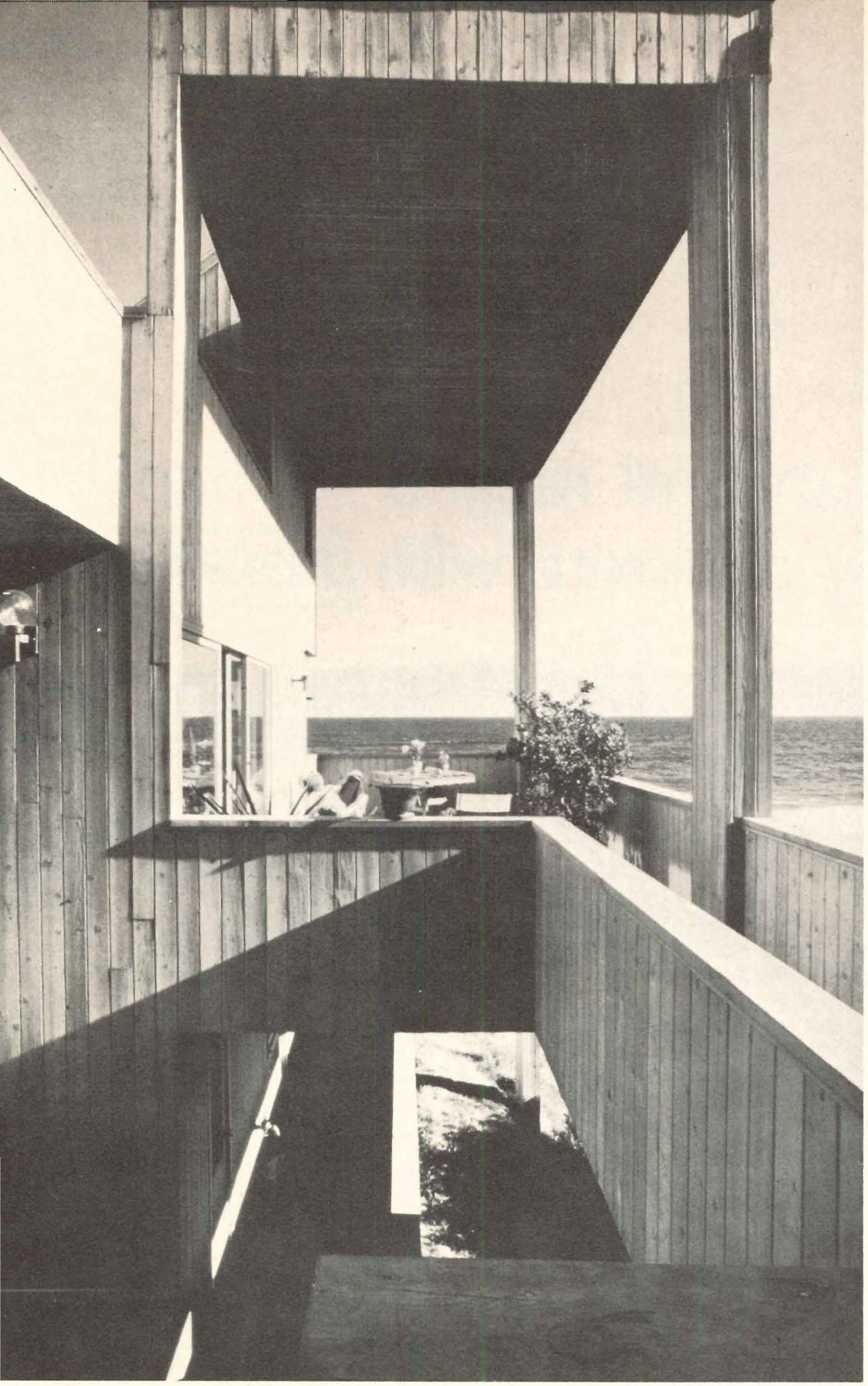
The lower level of the forward unit contains a study and living room. The study, actually a continuation of the living room, is defined by a raised floor and lower ceiling height, and provides an intimate space in contrast to the openness of the 2-story living room. Glass doors on the east wall of the living room open to a brick-paved terrace, while four large windows on the south wall command splendid views of the ocean and beach. Centered on this wall is an open, black-iron fireplace suspended by chains from the ceiling. A small window behind the fireplace lets one view the fire and ocean at the same time.

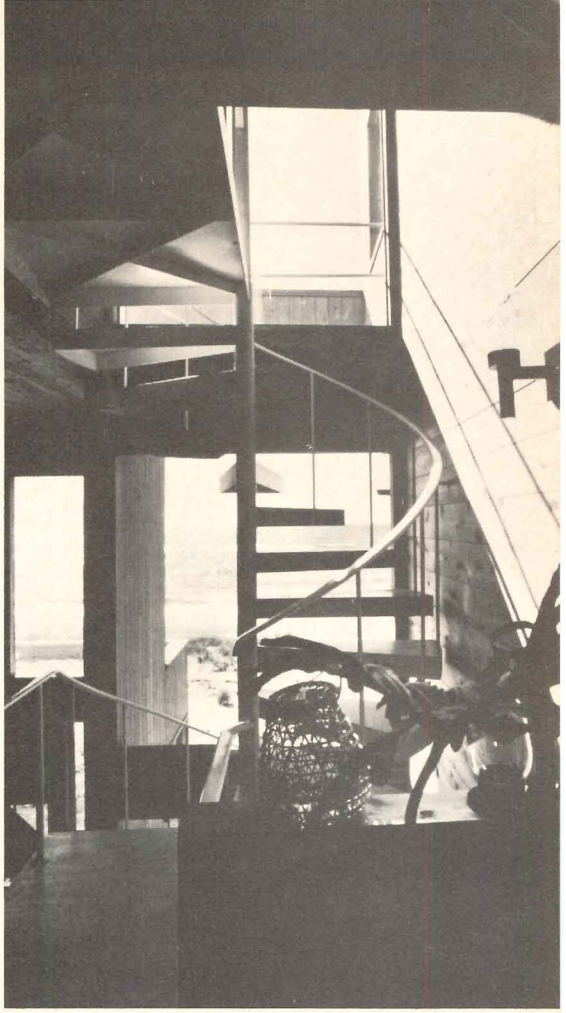
The basic construction is wood frame with bleached cedar siding placed vertically as the outside surface. The decks, including the roof of the front deck, are constructed of 2 x 4's placed on edge with ¼ in. masonite spacers between each board.

Originally, the house was designed to sit on wooden stilts so that the natural foliage could continue under the house and the site would remain undisturbed. Local codes, however, required a full foundation, so the house was adapted to sit on a concrete block foundation dug into the cliff. This increased the cost, but added basement space for a laundry and utility room, as well as a spare room with direct outside access.

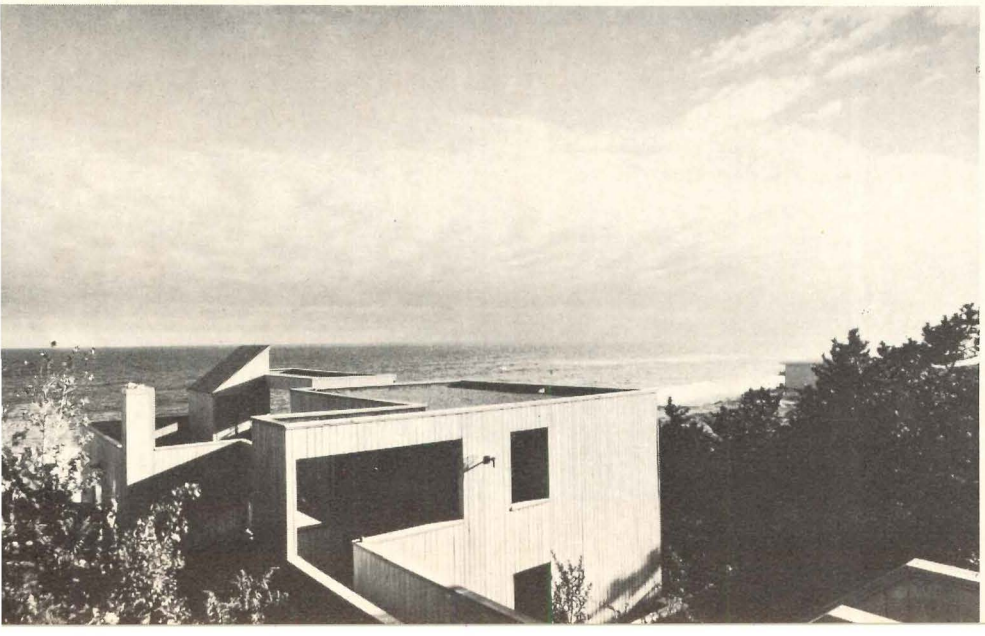
Because Architect Kaplan was forced to substitute the block foundation for the stilts, he feels the house is "not quite so pure — a less clear architectural statement": the structure of the house is no longer consistent with it's substructure. But he is relieved to see the project finally completed. After the projected design won an AIA Small House Competition citation in 1966, the local zoning board delayed construction because the house was "out of scale with nearby houses." Further opposition came from the local newspaper because it was "out of character with the community," while neighbors attempted to prevent it's construction because it was "hideous." Further, when construction was finally underway, the contractor went bankrupt! If it had not been for the architect's persistence and the cooperation of his client, the handsome contribution of the house to the community would never have been realized.

BEACH HOUSE FOR DR. WILLIAM LEE CURRY, Montauk, N.Y. **Architect:** Richard D. Kaplan, AIA. **Site:** A dramatic 40-degree cliff overlooking the ocean. **Program:** A four bedroom beach house with ample outdoor space. **Structural System:** Standard wood frame. **Major Materials:** Natural cedar siding inside, bleached cedar siding outside. **Mechanical System:** Only the front unit is heated with forced warm air. **Landscape Architect:** Richard D. Kaplan. **Costs:** Budgeted, $35,000; bid, $40,000 (not including kitchen fixtures, spiral stair, cedar siding on interior walls and ceilings); actual, $47,000, or 2020 sq ft of enclosed space plus 1600 sq ft of deck space at $19 per sq ft. **Photography:** Jeffrey Foxx.



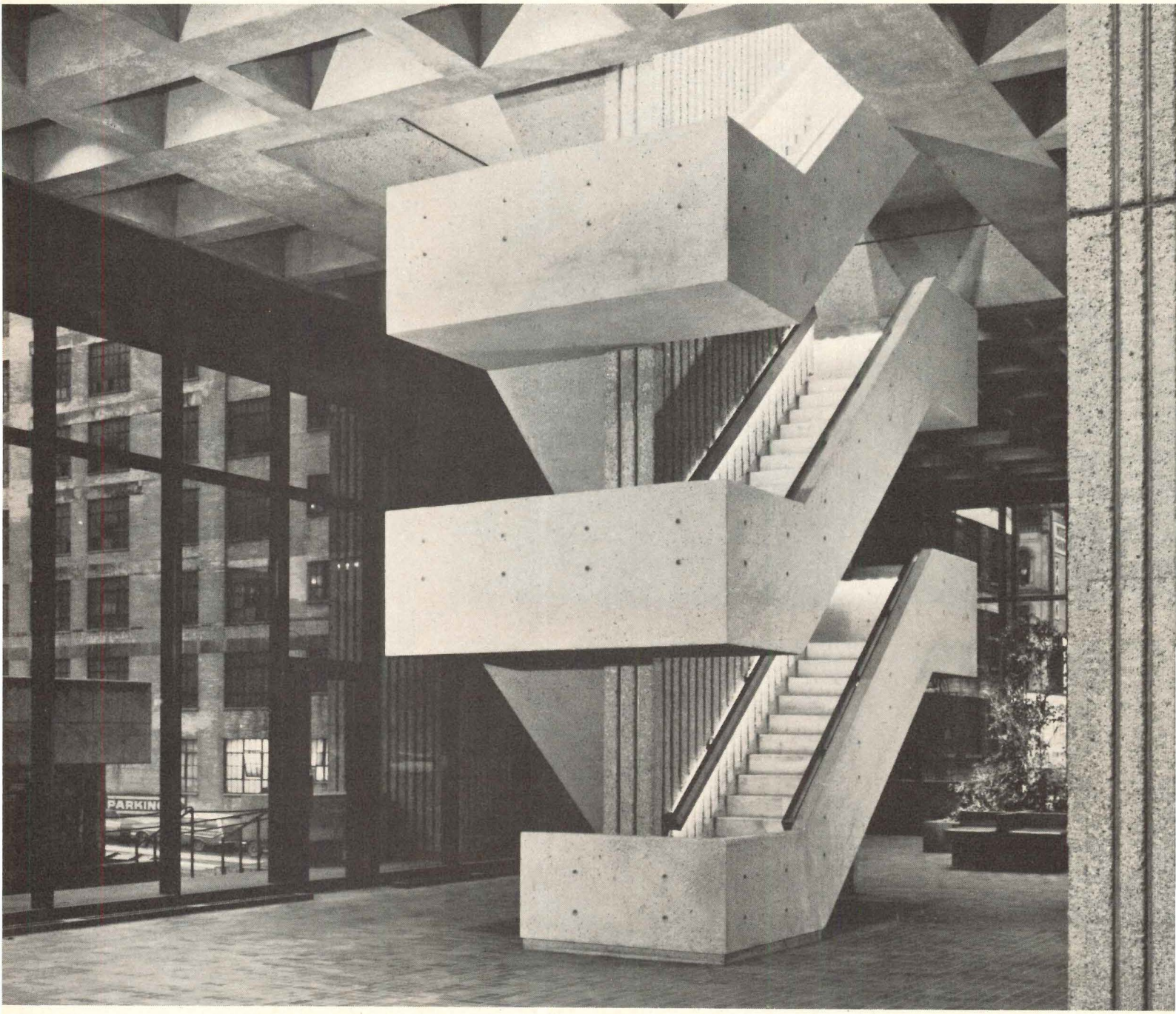


The double ceiling height of the canopy-covered main deck dramatizes and visually enlarges the scale of the house (above, right). The steel spiral staircase (above), actually 4-stories high, gives an added dimension to the house and provides a dramatic focal point from inside, while from the outside, it's elegant spine-like pattern serves as a relief from the otherwise linear structure. Below, photo shows view of living room as seen from the kitchen.





Natural beauty and rugged strength—
heightened by concrete with **POZZOLITH**





The Blue Cross-Blue Shield Building on Chicago's Wacker Drive stands as a striking contribution to the city's famed skyline. Imaginative forming, exposed aggregate textures, and coloring to earth tones add architectural interest inside and out.

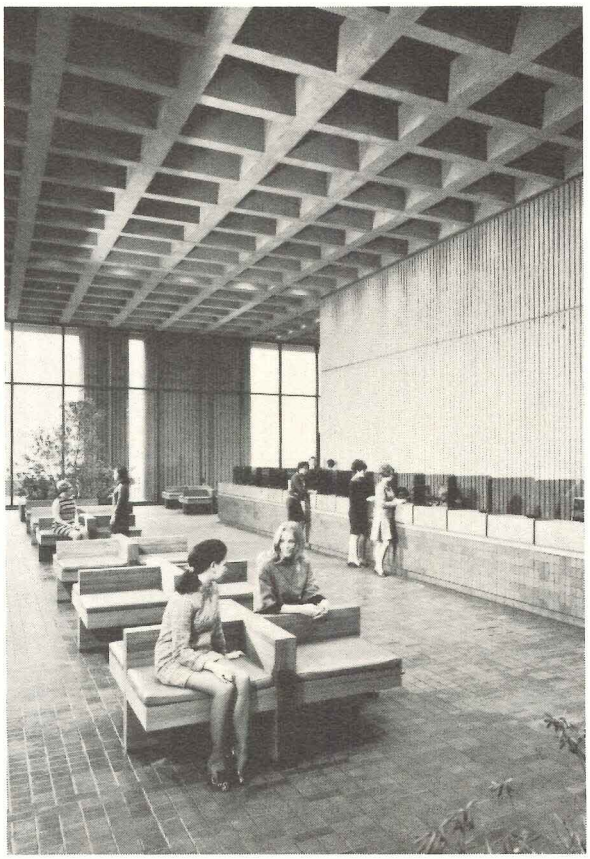
The cast-in-place concrete structure is a nearly-square 15-story tower. Its dominant horizontal lines are bonded by twin pilasters rising from ground to above roof level on all four faces. Fluted walls and waffle slabs punctuate the surfaces and blend the warm concrete with the wood, tile and floral accents.

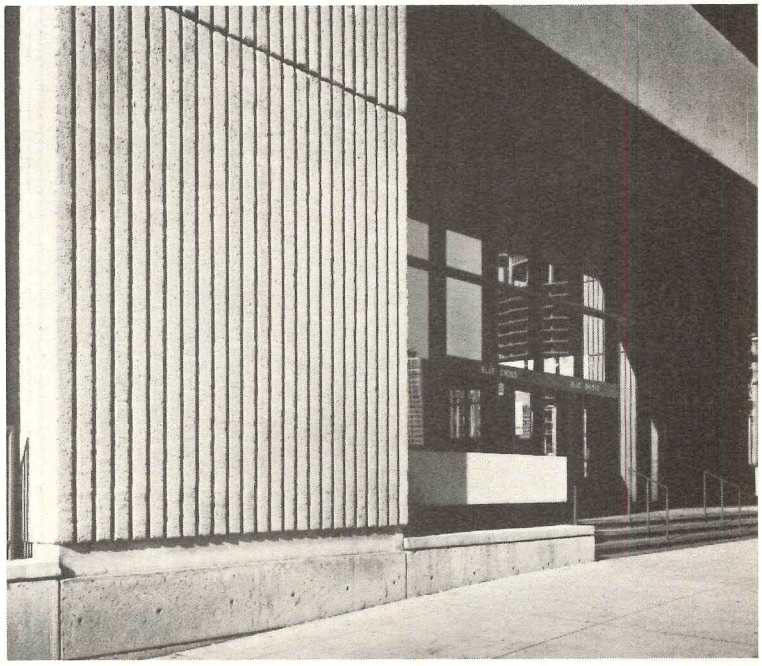
As in most major concrete structures, *POZZOLITH* was the admixture specified and used. It aided in rapid strength development for fast reuse of forms. By improving workability, *POZZOLITH* helped achieve better consolidation in the forms. The result is a virtually blemish-free surface of outstanding appearance.

Once again, *POZZOLITH* delivered its many benefits where performance counts — on the job. That's why, over the years, *POZZOLITH* has earned the name "The Performance Admixture." Your local Master Builders field man can show you how *POZZOLITH* can enhance the concrete for your next job. Call him, or write Master Builders, Cleveland, Ohio 44118.

**POZZOLITH*
manufactured by
MASTER BUILDERS**

POZZOLITH is a registered trademark for MASTER BUILDERS' water-reducing, set-controlling admixture for concrete.





Owner: Hospital Services Corporation. Architect & Engineer: C. F. Murphy Associates. General Contractor: Paschen Contractors, Inc. POZZOLITH Ready-Mixed Concrete: Vulcan Materials Co., Mid-West Division.

On Readers' Service Card, Circle No. 413

Operation Breakthrough: Operation P/R

By Don Raney and Suzanne Stephens

Operation Breakthrough is a competition sponsored by the Department of Housing and Urban Development to involve private industry in the design of comprehensive housing schemes for volume production. Out of the 236 submitted proposals, twenty-two have been selected to enter the three phases of Breakthrough: the first phase calls for further design development of the proposals, the second, for prototype construction, the third, volume production.

Description of Program

Operation Breakthrough represents the Department of Housing and Urban Development's dramatic answer to America's housing crisis. With an estimated 26 million housing units needed during the next decade, past production (less than 1.5 million units annually) has proved to be less than satisfactory.

Involvement of Private Industry

As HUD realizes, basic to the problem of present American housing is the fragmentation of the construction industry — rarely are techniques implemented that can mass-produce housing. As a crucial part of the Operation Breakthrough program, the most successful instigator of mass production techniques, private industry, has been enlisted to submit proposals that would supply quality low- moderate- and middle-income housing in volume. To get full Operation Breakthrough backing, private industry's proposals had to indicate their ability to supply the total housing package, including the building system and organizational management. Requested in the proposal description were analyses of production methods, cost and price, estimated market needs and demands, plus feasible financing methods. The producers of volume housing could be individual groups or consortia composed of architects, industrial manufacturers, home builders, management firms, research organizations, engineers, sociological councils, product firms, computer applications companies, or systems builders — any combination of services needed to provide the housing package.

Involvement of Communities and States

Yet HUD doesn't fully rely on the private sector to implement the program: the Federal, State, and local governments are being actively involved by HUD in the *market aggregation* process. HUD realizes that fragmentation not only exists in the building industry but also begins with the land aggregation process preliminary to building. A producer has to locate land site by site on which to build housing, then he has to deal site by site with local zoning, building and housing codes, and, of course, locate financing on a project to project basis. To solve this problem, HUD has been soliciting from government bodies inventories of housing needs and demand, land available for such enterprise, and has asked that they relax restrictive building, housing and zoning codes. In addition, these localities are requested to determine sources of financing and construction, and to encourage the local construction industry to improve labor productivity and production methods. By this process of pooling market elements, HUD hopes to initiate a coordinated housing effort.

Inherent in the double-pronged drive for mass-produced housing and an aggregated market is the assumption that the cost of housing would thereby be substantially reduced. While accepting the fact that low- and moderate-income housing still must be subsidized by the Government, HUD contends that at least Federal subsidy will not need to be as great as in present housing.

Incentives to Communities

In order to encourage State and local governments to fully participate in Operation Breakthrough, HUD gives priority to Breakthrough projects in subsidy programs such as housing ownership assistance and rental assistance. Those localities that need financial and other help to implement Breakthrough

projects will be given priority and coordinated processing of applications, as well as funding for extra programs required because of Breakthrough housing. Another incentive the department offers is to allocate planning and community grants for sewers, water, open space, urban renewal, and similar projects first to communities participating in the program. (This, according to HUD, might provide some leverage for getting affluent suburbs seeking HUD assistance in public works programs to accommodate Operation Breakthrough low- and moderate-income housing projects.) State and local governments and the financial community also will be actively assisted in developing additional sources of permanent financing. To insure close-at-hand aid, a HUD decentralization scheme calls for establishing a number of HUD offices throughout the country. In addition, local governments can tap knowledge of existing markets available in the 76 nationwide FHA offices.

Assistance to Private Industry

So far as the private producer of housing is concerned, HUD pays expenses for those finalists awarded contracts to enter Phase I of the Operation Breakthrough program. Phase I calls for continued design and research, a period, HUD estimates, that should take from four to six months. The future schemes are then re-evaluated although most of them are expected to proceed to Phase II (prototype construction) on the ten selected prototype sites throughout the country. These also will be funded by HUD.

Construction of prototypes on selected sites will include a mixture of four or five of the twenty-two finalist proposals, matched to the site according to region and climate. Eleven site planners already have been selected by HUD to design the basic development arrangement and establish general site planning criteria. Each prototype site is actually a showcase to attract volume purchasers, which could include local sponsors — nonprofit or limited dividend sponsors — for subsidized housing projects currently administered by FHA, or local developers — any group performing all the functions necessary to provide a completed housing project including land management, marketing, construction, and legal services. (Prototype sites will also be testing grounds for design performance feedback since units will be partly — and eventually — fully occupied.)

From here, the Operation Breakthrough project goes into Phase III or volume production. HUD itself will not fund Phase III. Instead, contracts are to be negotiated between the housing consortia and the representatives of the individual aggregated markets — sponsors, private developers, housing authorities. Thus, the number of contracts in Phase III will depend entirely upon the market aggregation activities and industry marketing around the country. The producer will have to market his system to purchasing groups in competition with other successful systems. However, HUD will actively encourage investment in projects and will work with local and national financial interests to assure the availability of mortgage money (HUD has representation on the Board of the Federal National Mortgage Association). HUD is willing to help set up production facilities for Phase III — with terms of assistance negotiated with each contractor.

While the thrust of Operation Breakthrough is aimed at these total follow-through (type A) proposals, HUD has also been seeking a second type of proposal (type B). This would comprise concepts that are not ready for construction but provide innovative solutions to individual elements of the total system. Submissions in this category would be awarded contracts on the basis of needing further research and development before being considered for actual application. Proposal topics may include building systems, building elements or materials, and land-use concepts, as well as particular solutions involving management, financing, site development, and processing.

Design

As far as design is concerned, HUD has ostensibly sought well-designed housing responsive to the environmental needs of the occupants and to the urban milieu. Admitting that one of their significant constraints is the tendency of people to prefer living in the kind of place they are used to, HUD still hopes to put up marketable innovative housing on prototype sites. Producers have to submit an analysis of the potential market to prove that their scheme is realistically marketable. Nevertheless, the prototype phase should determine if housing that is a little out of the ordinary is palatable. There will be no difference in the quality of housing despite different income levels, and the actual market for any Operation Breakthrough system will be determined, in the final analysis, by the producer who will establish the selling price for the various models. HUD has formed its own minimum standards of unit design that will replace existing FHA and HAA design and construction standards with mandatory performance requirements and optional guidelines included (p. 29, FEBRUARY 1970 P/A). Nevertheless, respondents were encouraged to engage in innovative design thinking even if it deviated from the criteria.

Architects from AIA headquarters, as well as a number of representatives and architects employed by such nonpolitical Government departments as DOD, Department of Agriculture, and the Post Office, were involved in the selection of Breakthrough proposals. HUD's own George Romney and Harold Finger, Assistant Secretary for Research and Technology (previously a NASA administrator) headed the evaluation committee.

Operation Breakthrough

Subsidy is the Key to Success

Operation Breakthrough is a good program. It is a well thought out attempt by the Federal Government to involve American industry in solving the nation's chronic housing problem. But Breakthrough's most impressive achievement is its understanding of the American economic system, a system in which all that is profitable will be accomplished by private industry, and whatever is not immediately profitable must be done by the Government.

In other words, Operation Breakthrough may involve big business in the housing market, resulting in massive housing construction for middle- and upper-income groups; but without Federal subsidization, it will never solve the housing problem.

Perhaps, as it now exists, the construction industry could turn out 26 million housing units; that is, if there were 26 million families who could afford to pay market rents. According to the President's Committee on Urban Housing, ten million of these families will need rent subsidization because they will be unable to pay monthly rents of $65 to over $150 per room that a developer must charge. Breakthrough, which might reduce rents by 15 per cent at most, will not change the situation much. HUD Secretary Romney promises a 200 per cent increase over the 1969 figure of 165,000 subsidized units. Even this optimistic increase will make only a small dent in the one million units needed each year. And considering the President's tightfisted attitude toward welfare, the increase itself is in doubt. In fact, Congress has never fully funded the many existing housing programs (D–235, D–236, Model Cities, In-Cities, etc.).

In order for Breakthrough to work, Congress must be persuaded to change its ways with subsidy money, and it is here that the biggest breakthrough of all must occur. By interesting industry in the fortunes to be made in the housing field, industry in the form of lobbies could force Congress to loosen its purse strings and, in effect, either directly or indirectly subsidize rents on a massive scale. After all, industry's position is strong considering America's faith in industrial technology. "If industry can't do it, who can?" is the aphorism. The Federal Government is the obvious answer. But if Government becomes the builder, it means socialized housing. And to many people *that* is untenable at this point.

The Public Relations Aspect

Careful management of Breakthrough information by HUD has produced the desired effect — the Nation's attention is focused not only on industrialized building, but also on the housing problem. The con-

HUD Chooses...The "Best" of Breakthrough

After months of waiting, the smoke has cleared and HUD has announced the finalists awarded Breakthrough contracts for prototype construction. The results are predictably "democratic": instead of fully backing 20th Century design and present-day technology, HUD has chosen to keep at least one foot in the past. So we still have "breakthrough" designs with colonial trappings on prefab components developed in the '40s. In instances where technology is advanced (Alcoa's aluminum load-bearing rib wall or Material Systems Corp.'s polyester resin and dirt molded structural panel), packaging is deceptively traditional. This kind of approach could make the prototype site simply a dealer's showcase for products. Of course, there's the question of market acceptability — giving the people "what they want." But it might seem strange that HUD is backing the prototype construction of systems by companies like Levitt, Home Building, Scholz, Boise-Cascade and Alcoa who have been doing the same thing profitably on their own.

Alcoa, incidentally, had submitted a tension-framed high-rise system (originated by architect Christian Frey) that called for tall concrete towers spanned by trusses. Living modules were to be suspended from truss hangers which would mean that inner-city construction could take place over existing housing — so less relocation and less land clearance beforehand would be necessary. However, HUD decided to award Alcoa for its less exciting low-rise multifamily system.

Low-rise multifamily schemes seemed to be favored in Breakthrough projects, although the variety in types offered by each winner of ten includes high-rise and detached one-family houses. One winner, Republic Steel, provides a system for detached single-family dwellings, *only*.

Of the winning proposals, seventeen consortia included architects. Sadly, the only consortium actually led by an architectural firm —Sectra-America, headed by Ecodesign Inc. of Cambridge, Mass. — did not win. Strangely enough, none of the other semifinalists with systems originating in the Boston area won, despite the fact that as many as seven were submitted. Included were systems designed by Cambridge Seven, Neil Mitchell Associates, Stull Associates, Carl Koch, engineer Sepp Firnkas, and Geometrics, Inc. Since NASA withdrew from Boston, and Federal funds for the Boston Redevelopment Authority have been cut back, a persecution complex seems to be developing in Kennedyland. But there is also speculation that what prevented even one Boston based system from winning was the question of "proprietary rights" on several technically similar systems.

It is unfortunate that legal or political issues may have affected decisions since technically advanced schemes are at a premium among the winners. A number of systems depend on wood or steel frame and nonstructural panel systems (Home Building Co., Scholz, Christiana-

tinuing suspense with which HUD built up to the final selection of winners held public interest, even though the actual housing to be produced is a long way off.

Industry, determined to be associated with the Breakthrough image, was quick to enter the contest and equally quick to do some advertising of its own. HUD encouraged this by stating in the program that final selection as a winner did not guarantee any contract for construction. All construction contracts would be negotiated on the open market so any firm, Breakthrough winner or not, could, if its price and system were right, win contracts. However, winners would have advantages like having a prototype built at HUD expense, thereby receiving the HUD "Good Housing Seal of Approval," and obtaining HUD backing in the areas of land improvement and utility subsidies, as well as easier access to other Government housing programs.

An air of healthy competition was established. One large contractor, a major builder of housing, said that his firm, and others he knew of, had formed consortia to enter Breakthrough, not so much to win, but more importantly, to be with the coming thing.

Of course, it is only in the public mind that technology and prefabricated systems methods of construction are new. "Prefabricated building systems were really the thing when I got out of architecture school in 1933," one housing official told us. Actually, it is not important that systems building can be traced back to the first wood plank, precut and planed offsite in a lumber mill. What is important is the general excitement Breakthrough has brought to solving the housing problem. For the first time, warranted or not, we have the feeling that there is a viable answer to the problem.

This positive attitude is the direct result of Romney's desire to create a progressive image for HUD. Those who worked on HUD projects in the past quickly became familiar with phrases like "red tape" and "bogged down." A recent reorganization of the department is aimed at streamlining procedures, but it is too soon at this point to make any predictions.

However, some of this new progressive image carries over to Breakthrough, especially in the area of follow-through. HUD, in conjunction with the Building Research Advisory Board, and John Eberhard's systems oriented architecture school at the University of New York, is presently at work compiling a publication of all 601 Breakthrough proposals. The publication will abstract the best parts of each proposal and expose to the housing industry many of the excellent ideas found in the 421 type B proposals and 143 non-winner, type A proposals.

A less immediate, but equally important, adjunct to Breakthrough is a public education program recently initiated by HUD. Realizing that public acceptance of new designs depends somewhat on familiarity, HUD is sponsoring museum shows of outstanding design achievements. The first show opened in February in Washington's Cochran Gallery and deals with the work of Paolo Soleri.

A Rich Man's Second Home

The thinking that went into the Breakthrough program is definitely comparable to Romney's tactics in

Western, Boise-Cascade, Hercules, G.E., Republic Steel, Levitt, and Stirling Homex). Concrete panel systems were represented in less quantity (Module Communities, Inc., Henry C. Beck Co., Descon/Concordia, Forest City, Rouse-Wates, Shelley Systems). Several new firms have come up with new types of structural panels however: Material Systems Corp. utilizes molded load-bearing panels of fiber-reinforced resin with earth filler; Ball Brothers offers polyurethane foam panels; Pemtom has glued plywood load-bearing panels.

Most of the systems call for on-site erection; however, Pemtom, Shelley Systems, National Homes (resin and dirt sprayed on metal studs), TRW Systems Group (plastic shell), Stirling Homex, Hercules and Levitt (conventional wood framing), all use volumetric units assembled at the factory and transported to the site.

Factory-assembled bath, kitchen, and utility cores that plug into dwelling units were expected to be the greatest breakthrough by some housing experts. Results show that only several consortia are so committed, with Ball Brothers Research Corp., National Homes, and Alcoa, offering the most complete ideas.

P/A has selected a number of the most interesting systems, based on design and technological criteria, to give our readers an idea of the best of Breakthrough.

List of Breakthrough Winners

. . . **Here they are.** Rumor has it that HUD, instead of narrowing down the 37 semifinalists was just going to rate them. Although they did decide on 22 finalists, it is asserted that the rating (unpublicized) still stands. This list, however, is alphabetical: Aluminum Company of America (Perkins & Will, architects); Ball Brothers Research Corporation, (Elliot H. Brenner, architect); Henry C. Beck Co. (Keyes, Lethbridge & Condon; Sulton & Campbell, architects) Boise-Cascade Corp. (David Crane, architect), Christiana-Western Structures (B. A. Berkus & Associates, architect), Descon/Concordia (Philip David Bobrow and George E. Buchanan, architects), Forest City Enterprises, Inc. (Barbitta-James & Associates, architects), General Electric Co., (Hugh Gibbs & Donald Gibbs, and Leon Julius, architects), Hercules Inc. (Armstrong & Salamonsky, architects), Home Building Co., Keene Corp. (Warner Burns Toan & Lunde, architects), Levitt Technology Corp. (B. A. Berkus Associates, architects), Material Systems Corp. (Skidmore, Owings & Merrill, of Chicago, architects), Module Communities Inc. (Skidmore, Owings & Merrill, of New York, architects), National Homes Corp. (Edward Durell Stone, architect), Pemtom Inc. (Interdesign Inc., architect), Republic Steel Co. (Edward A. Schmitt, architect), Rouse-Wates Co., Scholz Homes Inc., Shelley System Co., Stirling-Homex Corp., TRW Systems Group (Building Systems Dev., Inc. architect).

solving American Motors' problems when he was president of that company. There, he produced and marketed the Rambler as the rich man's second car, which also happened to make a perfect first car for a less-than-rich man. Romney's formula was successful for automobiles. Hopefully, this multi-class, multi-use concept will hold true for housing. The Breakthrough program attempts to produce one economic type of housing unit which, by use of various rent subsidy programs, can be inhabited by people of all economic groups. The idea is to remove the stigma of low-income housing, a stigma that may have contributed to the fires in Detroit last year.

Conceivably, mass-producing housing could obviate the status hang-up. Factory produced housing, using our comparatively excellent quality controls, will be superior to most housing now being constructed. Also, less of the aesthetic ambiance will depend upon the builder, and more of it will be the result of architect-designed systems, since almost all winners included architects in the consortia.

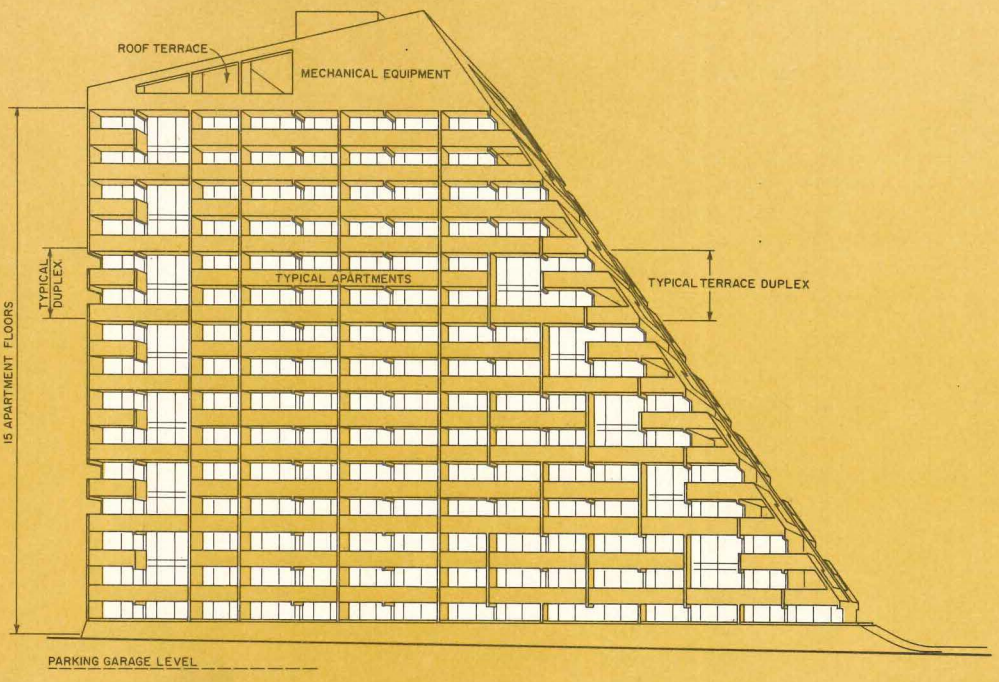
The Technical Breakthrough Exists Already

Operation Breakthrough has two primary goals: to introduce advanced systems technology into housing construction, and to create a large enough "aggregate market" to make industrialization feasible. As to the first goal, Breakthrough is only accelerating what already exists. Levitt used factory prefabrication techniques to build tract housing right after World War II, about the time the Europeans began constructing their own industrialized housing. It is well known that the prefabrication process caught on in Europe, but never got much beyond the tract-housing builder in this country. One exception, however, is the mobile home industry which has experienced a phenomenal upsurge in the past few years. In effect, the mobile home manufacturers created their own Breakthrough without an operation.

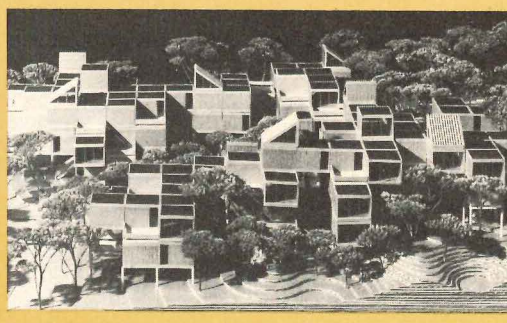
The reasons usually given for our failure to factory produce housing are: shortsighted labor unions, restrictive zoning ordinances, antiquated codes, and the lack of a large enough, identifiable market. Romney is presently at work trying to show the unions that year-round jobs created in housing factories will mean more work for labor union members.

The second goal of Breakthrough addresses itself to zoning, codes, and market. HUD's "aggregate market" idea is an avoidance of the crying need for a national land policy. What is needed is for the Federal Government to set aside certain parcels of land for housing, in much the same way that land is now obtained for military bases, military housing, space activities, research centers, and national parks. Like national parks, land for housing must be considered a national resource, where the Federal Government does not bow to the concept of "home rule." In housing the nation, there is no reason why each small town or county should be able, through the medium of underpaid code officials and oppressive zoning ordinances, to keep a third of the people of this Nation from enjoying adequate housing.

Some of Breakthrough's Best



Module Communities Inc., *Celanese Corporation, American Standard Inc., sponsors; Industrialized Building Systems, systems designer; Paul Weidlinger and Cosentini Associates, engineers; Skidmore, Owings & Merrill, architects and planners; Hudson Institute, social and economic research group; F. D. Rich Company and Module Communities, Inc., contractors; Renato Severino of Urban Technology International, consultant. Precast concrete load-bearing panels are erected by crane, grouted at joints, creating a rigid structure. A component plumbing system consists of fixtures, fittings, and a preassembled plumbing wall. This system (TRACOBA 1) has been successfully implemented in Europe.*



Pemtom, Inc., producer; *Interdesign, Inc., architect; Lorimer, Chiodo & Associates, economic research; Jacus & Amble, engineering; Community Involvement and Development Associates, Inc., social planning consultants; 3M Co., manufacturer. A volumetric module system (Unimod) utilizes load-bearing plywood panel units. Panels are held together by polymer bond which causes them to act as a single structural unit. Polymer applied at panel joints forms modular box structures. Utility troughs are in the floor of each module, and link with other units at a single connection. Modules may be "stacked" on each other, either evenly or by cantilevering. Higher structures require a free-standing armature to hold units and mechanical systems. Unimod structures may be used for scattered-site infill as well as planned subdivisions.*

Yet, the Federal Government is reluctant to approach housing in a direct way. So Operation Breakthrough was born. Instead of pre-empting land (with a fair price to the owners) as would be done for military housing, HUD will use its influence to "aggregate the market." Even this will be no easy task. True, HUD will be able to bring the power of other Government subsidy programs to bear upon communities loath to include a fair economic mix in their housing stock, but this will be effective only in communities needing Federal aid. It remains to be seen if HUD will be able to influence large metropolitan areas, the areas most in need of low- and moderate-income housing.

When choosing the eight sites on which prototype housing will be built, HUD did not choose any major cities although several sites were proposed for New York City. HUD can hardly be blamed for not choosing major cities with their inherent, sloth-like bureaucracies presenting obstacles at every turn. But if such cities do not make good prototype sites, will they every make good sites? One Government official, in a cynical moment, pointed out that no major cities were chosen because all of the winning sites are in areas which voted heavily Republican in the last election.

More Work for Architects

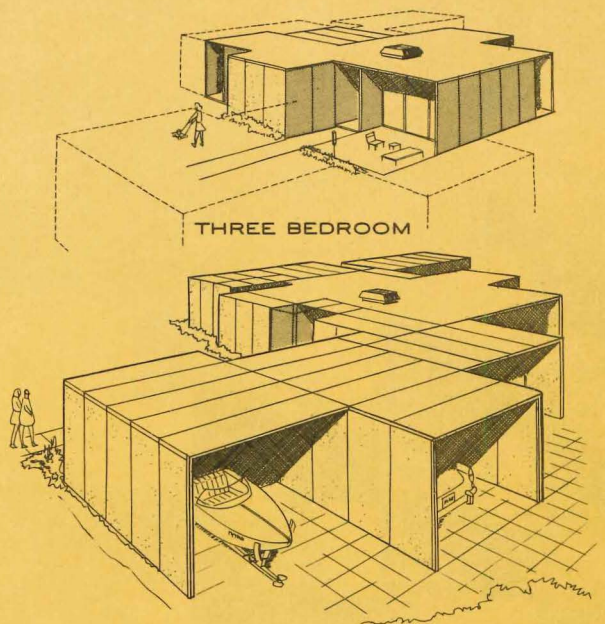
Simply stated, the more housing built, the more work for architects. Use of prefabricated systems will not mean the end of architects in the housing field. A requirement of each system is that it be adaptable to many site conditions and aesthetic configurations. Architects will still have many decisions to make, and those architects most familiar with prefabricated systems will be making them.

Of course, no one will be making any decisions unless the general high interest, tight money situation changes. Presently, interest rates are so high on short-term construction loans that housing starts have fallen even below pessimistic predictions. Many financial experts feel this situation will continue at least for another year. By then we will be incredibly behind in our housing goal.

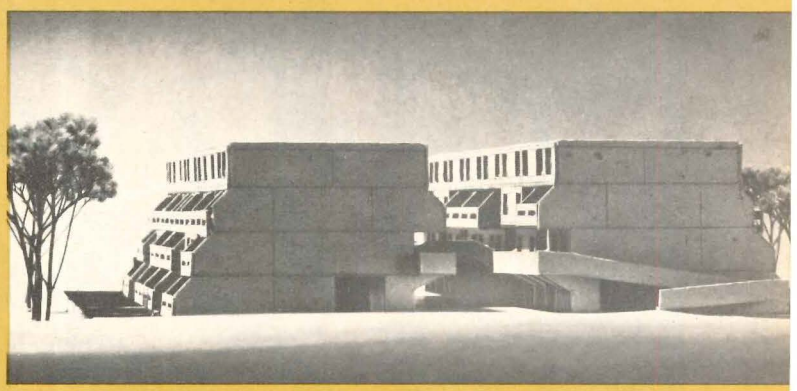
What Can We Expect from Breakthrough?

From Operation Breakthrough itself we can expect very little in the next few years. But spinoff from Breakthrough in the form of a shot in the arm for industrial involvement in the housing scene may be enough to reverse the trend.

Also on the brighter side, architectural involvement in the submissions has been inspiring (some of the more exciting type A proposals are shown here). More than ever, architects are talking and doing something about housing and housing systems. Breakthrough is responsible for most of this enthusiasm. Hopefully, the inspiration will last, the money will come, HUD will convince the unions that prefabrication will mean more not less work for labor, markets will be aggregated, and industry will tackle the new frontier of housing.



Ball Brothers Research Corporation, producer; *Elliott H. Brenner, architect; Leo E. Zickler, real-estate developer. Their "Pantek" plan, geared to single family attached and detached houses offers composite structural panels of polyurethane foam with hardboard and cement asbestos board sheathing for walls and roofs, prefabricated utility cores, and computer-aided house design. The foamed-core panels can be erected by unskilled labor, using metal splines and rubberlike seals. Completely prefabricated mechanical utility-core modules consist of kitchen, bath, and a complete plumbing system. These self-contained structural core units, also of polyurethane foam, can be located anywhere within the dwelling; rooms and hallways are then placed around them.*



Henry C. Beck Co., contractor; *Balency MBM–US Corp., producer; Borg-Warner, manufacturer; Raymond D. Nasher, real-estate developer; Keyes Lethbridge & Condon and Sulton & Campbell, architects; William Morris and R.G. Green Development Corp., consultants. The Balency system answers total community problems with a range of low-cost building types that can also work as urban infill. Elements include precast concrete panels and floor slabs with integral mechanical and electrical subsystems. Five-story deck houses are arranged to offer each tenant a private entrance, terrace, and no more than a two-flight walkup. Housing is built over surface-level parking. Circulation decks serve as elevated pedestrian streets. Two types of high-rise, one with open access gallery, can form a continuous chain with deck housing.*

Operation Breakthrough

Architect: Shelley Systems

Shelley Enterprises Inc., *San Juan, P. R., Producer; Banco Popular de Puerto Rico; Hampton Development Corp.; Caribilt Construction Corp., Consultants Carlos Alvarado, Housing Management; Dr. Luis E. Mora, Structural Engineering; U.S. Home & Development Corp.; Dr. H.R. Stanton, Socio-economic Adviser; Dr. N. P. Loomba, Management; H.R.H. Construction Corp.; Urban Systems Research & Engineering, Inc.; Dr. August Komendant, Structures; Dr. S.K. Schiff, Psychological Consultant.*

Significant cost savings are achieved in the Shelley System by a staggered pattern of stacked concrete boxes. This staggering provides livable "created space" areas whose walls, floors, and ceilings are provided by the surrounding modules, resulting in housing at less than ten dollars per square foot in a project being erected for the Puerto Rican Urban Renewal Corporation. In colder climates the costs can be expected to run higher.

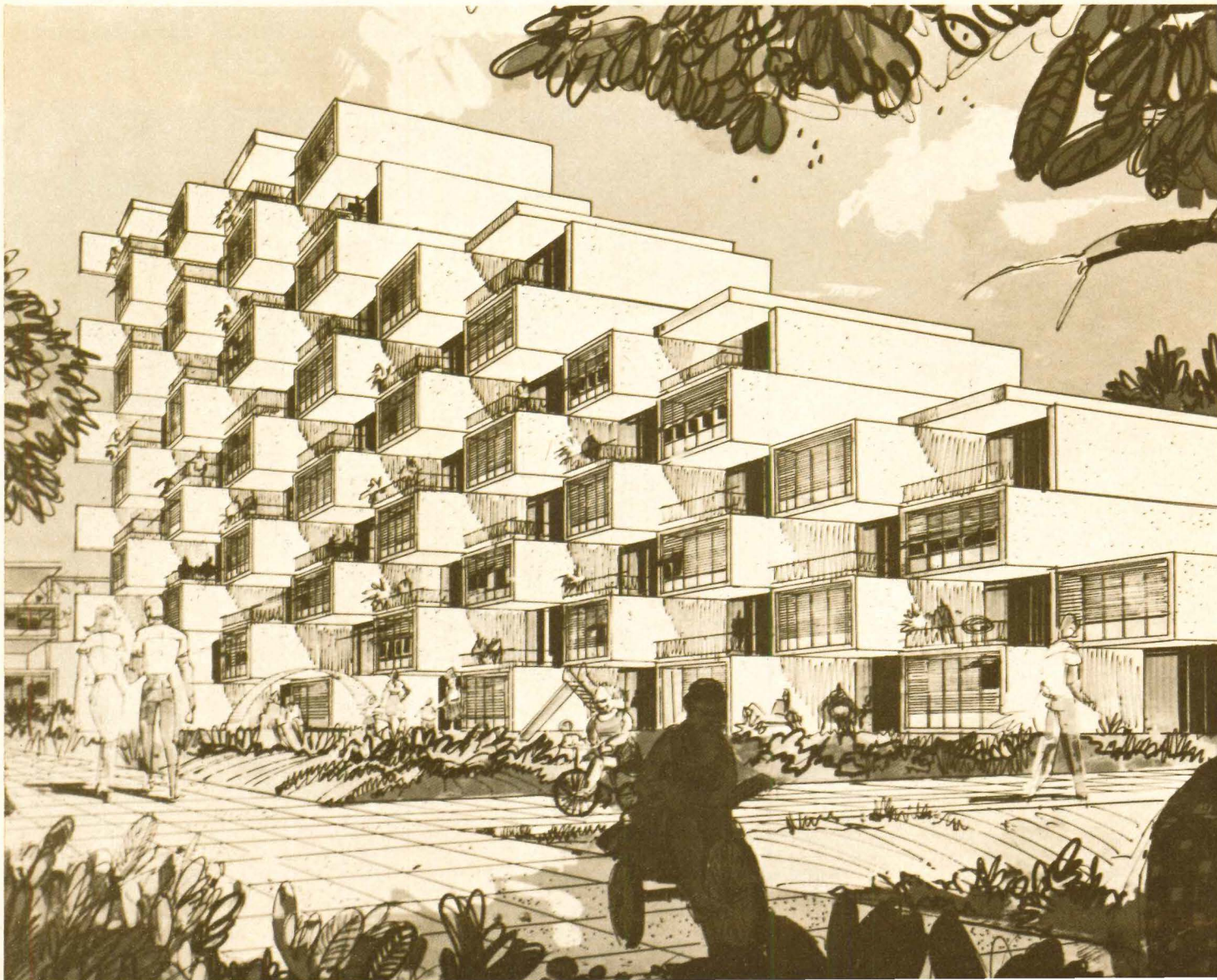
The structural system comprises precast concrete boxlike modules stacked with overlapping edges, thereby providing continuous vertical utility shafts in the walls at virtually no extra cost. The box itself consists of a floor slab, a ribbed roof slab, side walls with integral columns, and load-bearing partition walls. When the boxes are stacked, the columns match vertically, thus carrying all gravity loads to the foundation, and allowing thin box walls.

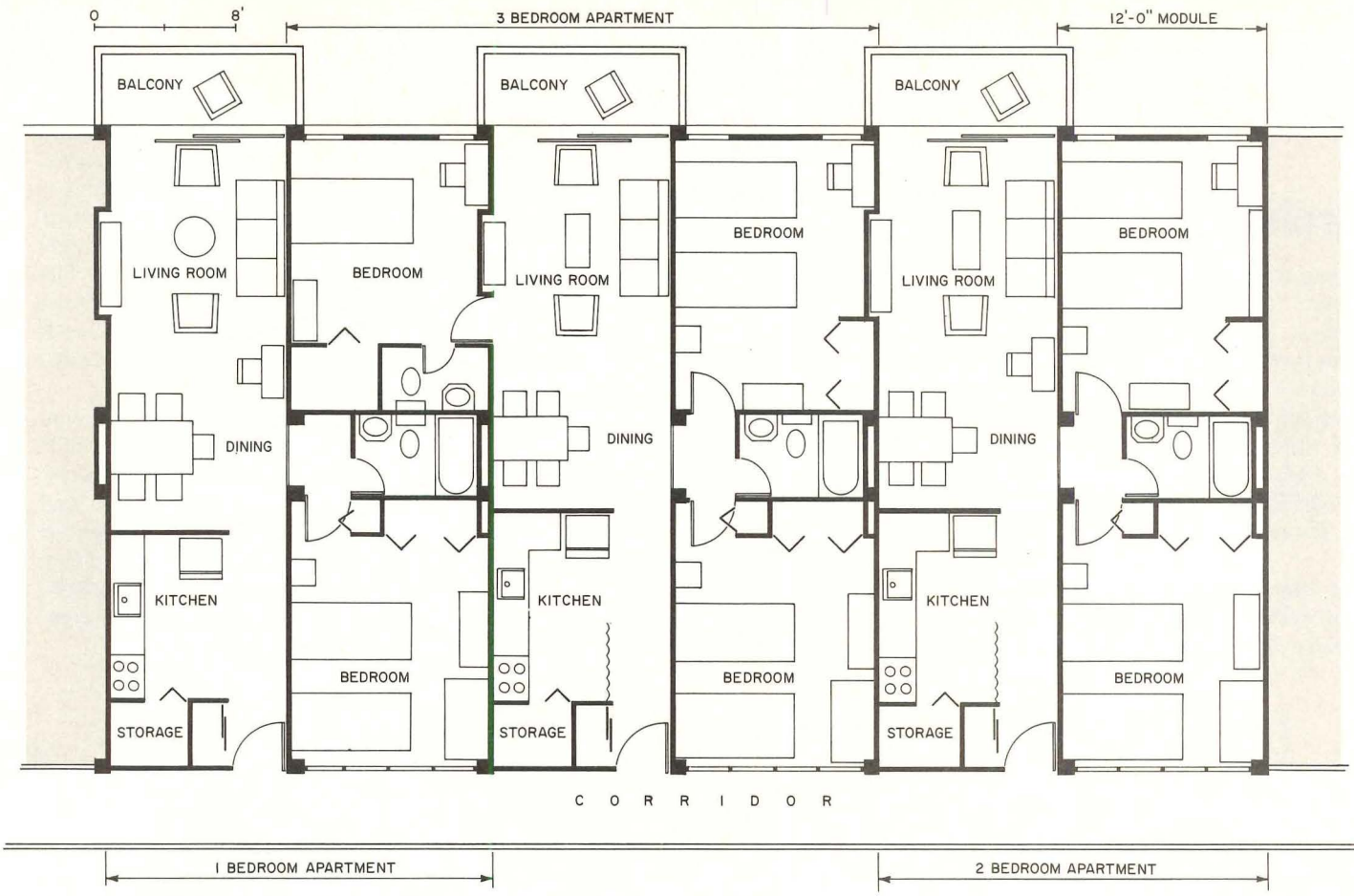
Where necessary for high-rise buildings, post-tensioning tendrons are placed in vertical ducts running through the center of the end columns and are anchored to the foundation. In low buildings steel dowels will protrude from the lower box and be grouted into the upper box. Elastometric bearing pads are placed at the contact surface of the columns between adjacent boxes. These pads decrease edge pressures due to manufacturing tolerances and contribute to the flexibility and ductility of the structure.

Buildings may reach as high as twenty stories. The façades can be varied by using longer modules which cantilever out from the building, or by stacking the boxes at an angle with the axis of the building.

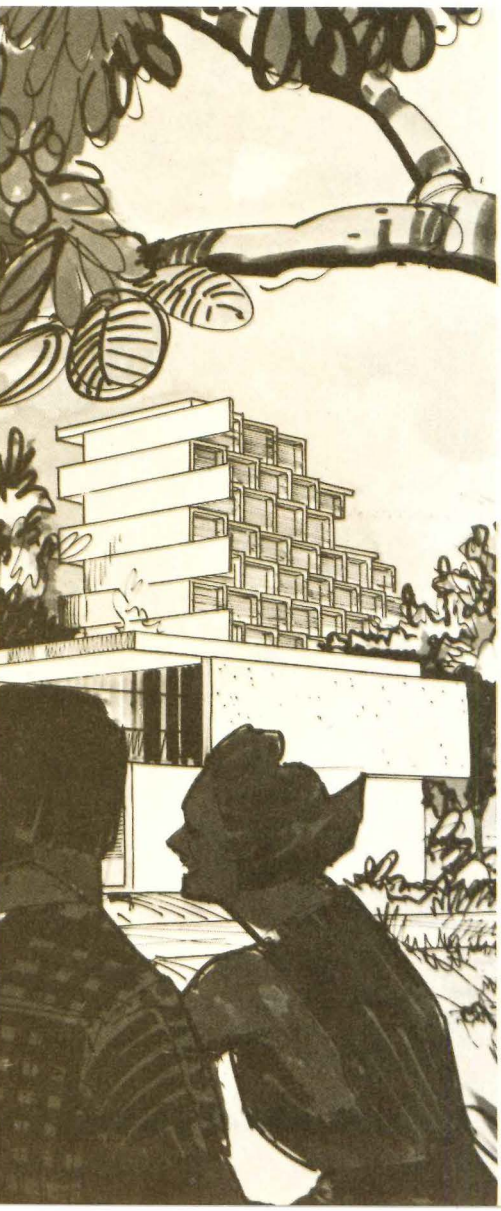
For horizontal transportation, cantilevered corridors run the length of the building. Elevator shafts, which are completely prefabricated, connect with the corridors. So far as the "created space" is concerned, any furnishings or appliances will be delivered in an adjacent module.

Apartments range in size from one bedroom to two-bedroom duplexes.

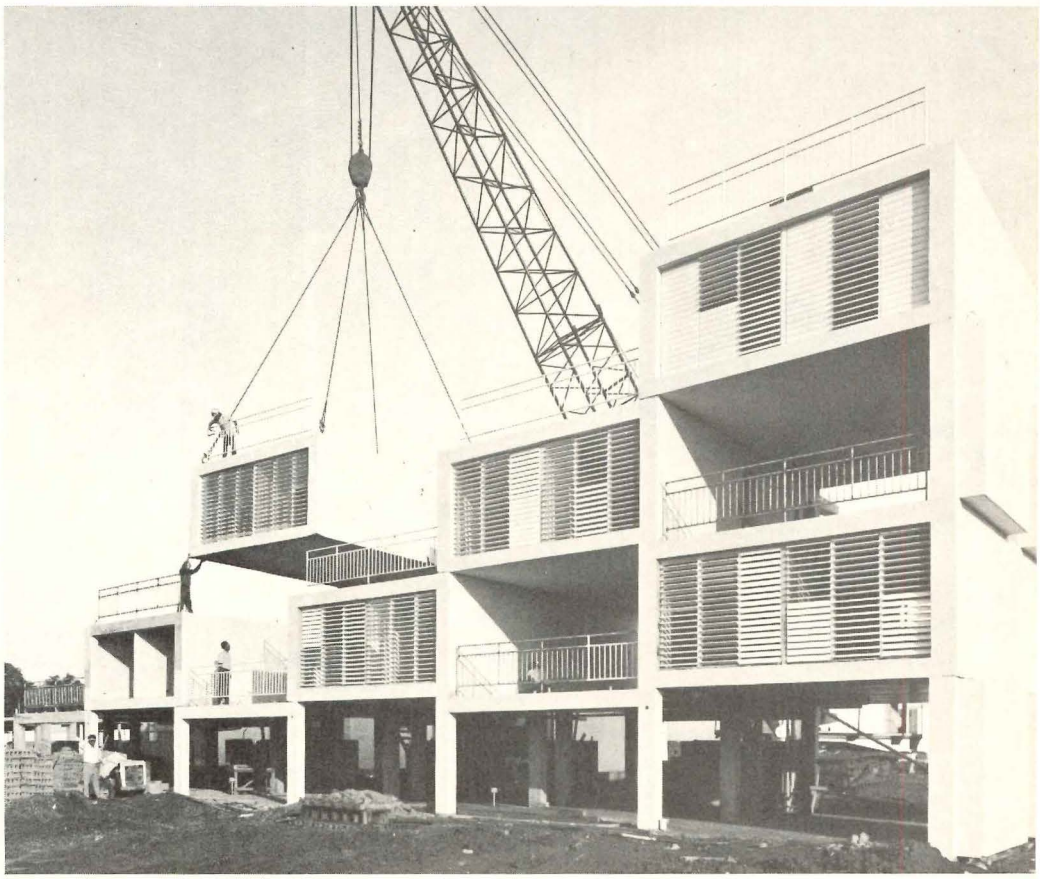




Floor plans for one-, two-, and three-bedroom apartments. Notice the alternation of module and created space which can be seen best in the construction photo below.



The crane-stacked 13'-6" modules overlap at the edges. Steel pegs hold the units together, while neoprene pads at the joints compensate for settling.



Operation Breakthrough

Architect: Warner Burns Toan & Lunde

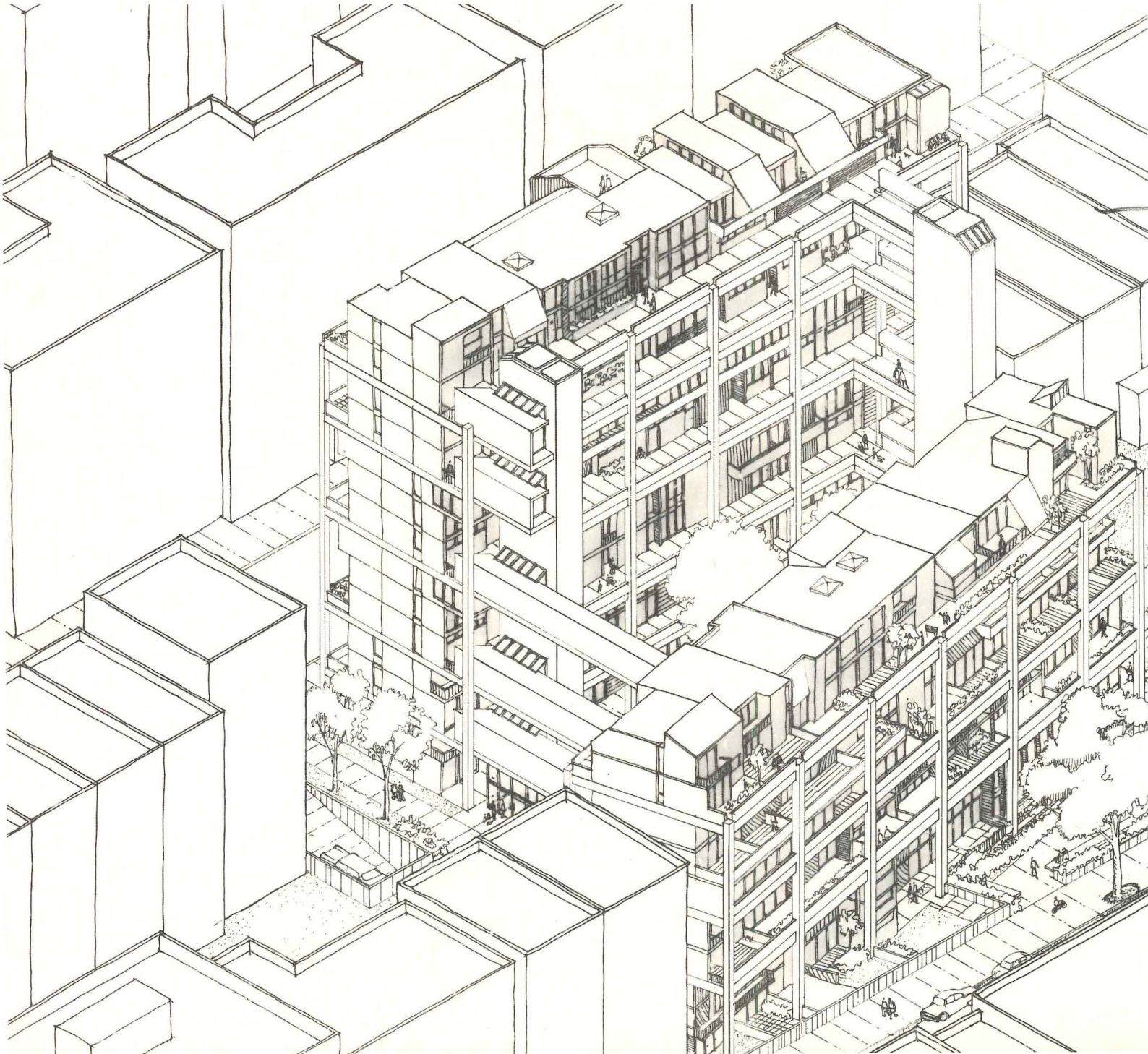
Keene Corp., *New York, N. Y., Producer; Grumman Aerospace Corp.; Node 4 Associates, Inc., Urban Environmentalists; Formigli Corp., Concrete Manufacturers; Alvin E. Gershen Associates, Inc., Planning and Zoning Consultants; 3H Building Corp., Builders and Developers; Robert Hughes Associates, Ltd., Project Managers and Cost Engineers.*

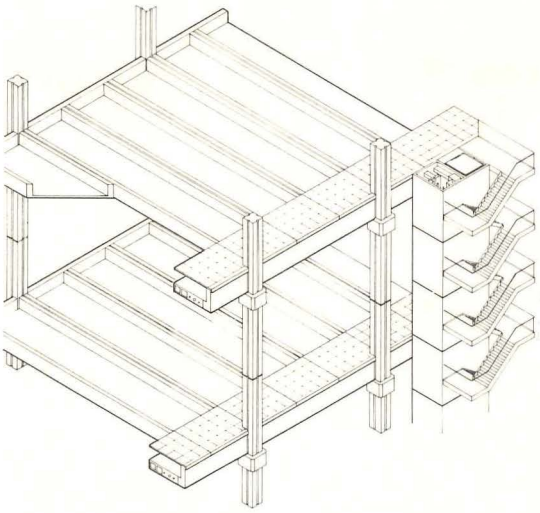
One innovative aspect of the Townland system is its adaptability to a variety of urban sites. It is equally suitable for erection on vacant land, on top of presently developed suburban sites, or for urban renewal projects where it could provide air-rights housing for tenants before existing buildings are removed.

The system incorporates two main subsystems — a Support Land System (SLS) and prefabricated infill-housing.

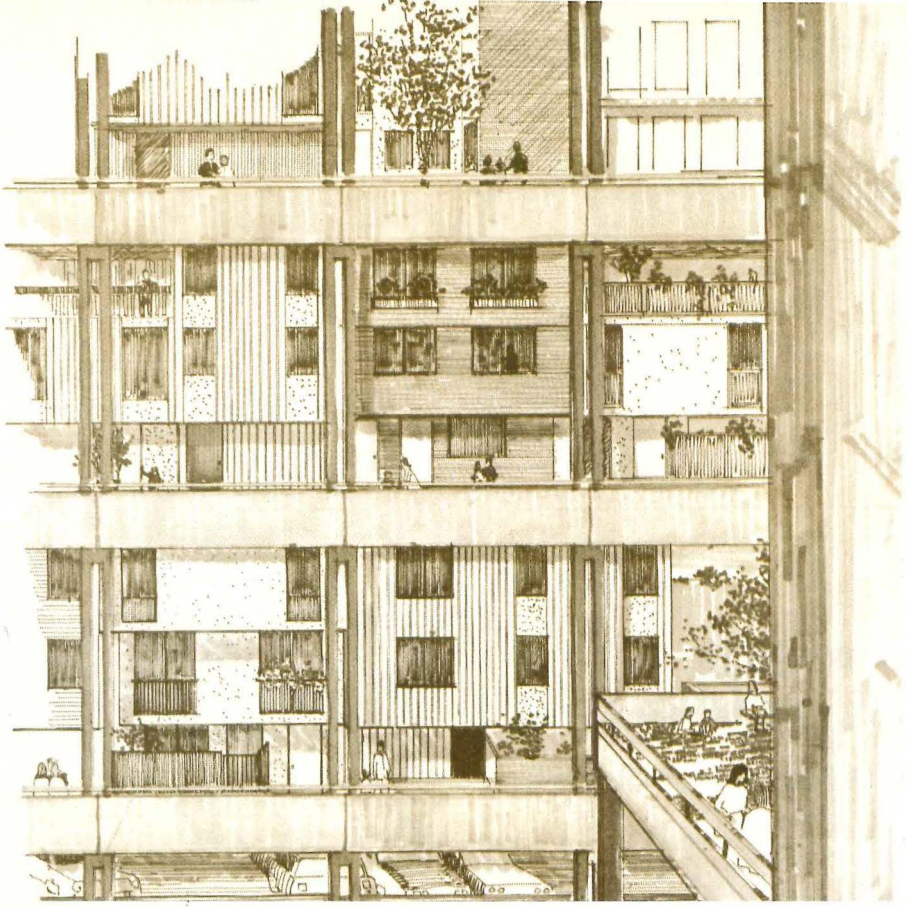
The SLS is a structural frame made up of precast, prestressed concrete components. Deck units carried on spandrel beams at three-story intervals create concrete grids enclosing regular open multistory spaces. The enclosures built into the grid would not occupy all of the deck area. At every third level, an elevated pedestrian "street" crosses in front of the house units, while private garden courtyards traverse the rear. The structure, which can reach fifteen stories, is designed to allow for earth fill, planting, pedestrian traffic, drainage, and access to utility ducts.

The second subsystem, infill housing, would be assembled on the SLS from incombustible, prefabricated, lightweight metal panel units, and factory built core units. Types of possible dwelling units range from one-bedroom apartments to five-bedroom townhouses, depending on community needs.

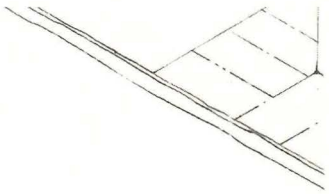


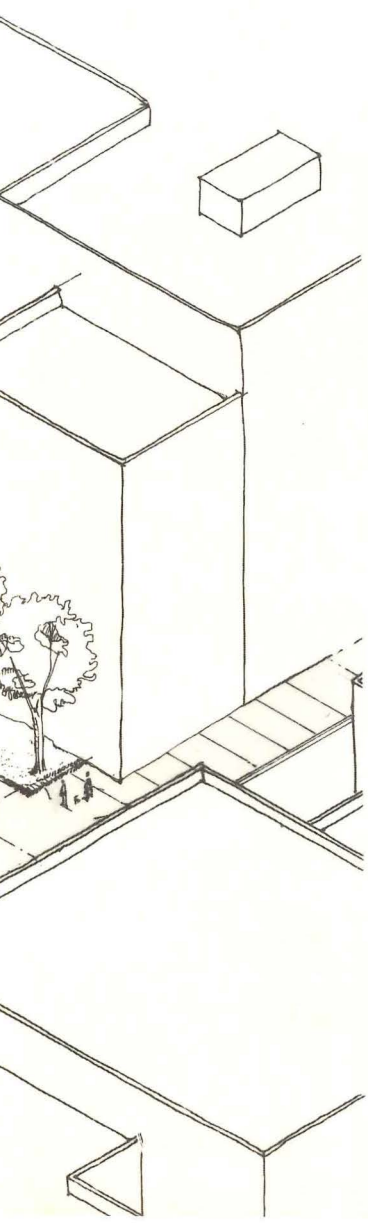


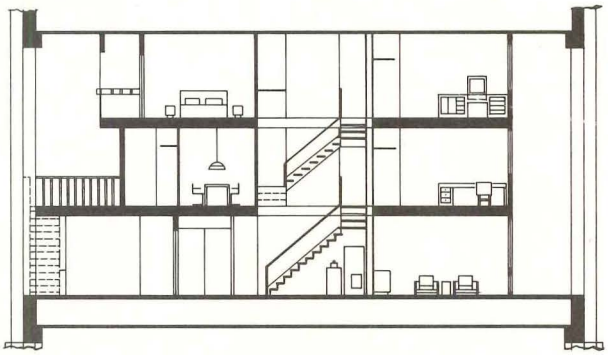
The deck system in which individual units are stacked.



Many textural effects are possible on the unit façades.

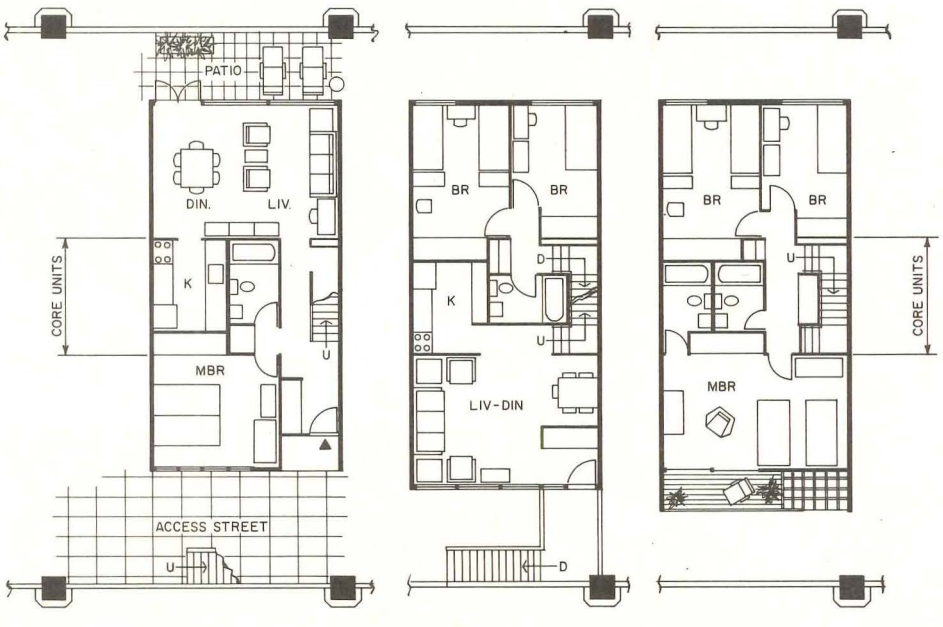




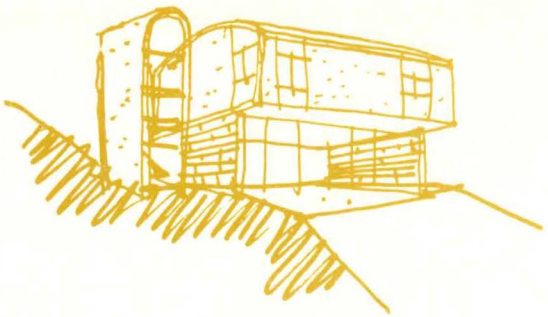


SECTION

A two-family townhouse unit in section and plan.

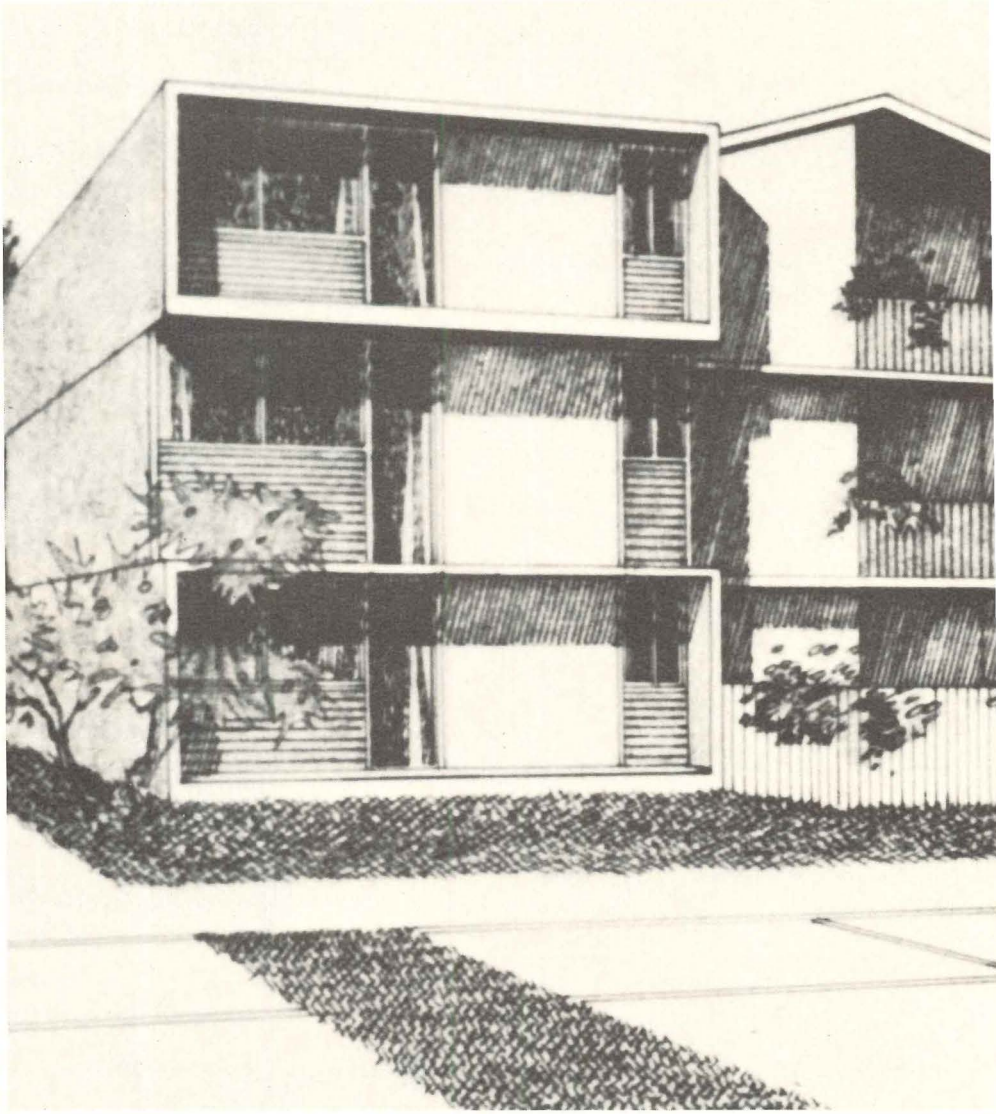


FIRST FLOOR SECOND FLOOR THIRD FLOOR



Architect: Building Systems Development Inc.

TRW Systems Group, *Redondo Beach, Calif., Producer; Kaufman & Broad, Inc. and Mid-City Developers, Inc., Developer-Managers.*



Although the TRW Fiber Shell, designed by Ezra Ehrenkrantz of Building Systems Development Inc. is basically a refined development of the filament wound building system investigated by the University of Michigan, 1967–68, refinements seem to have eliminated most of the faults of the filament process.

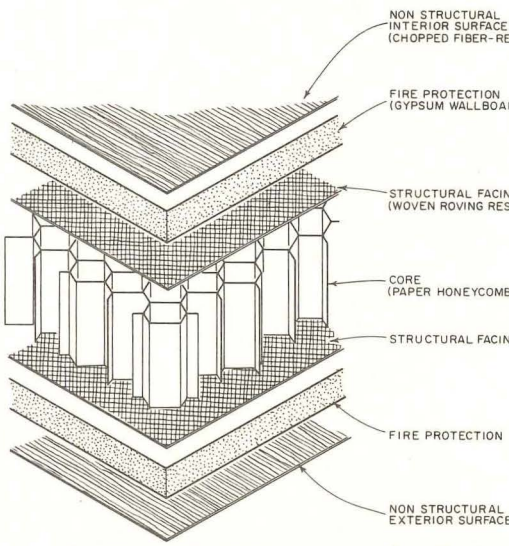
One advantage of the present system over previous explorations is that it allows for the inclusion of mechanical and electrical systems during the fabrication of the module. Heating and air-conditioning ducts, windows, doors, and electrical outlets can be readily installed by semi-skilled labor.

Other advantages include superior acoustic and thermal insulation, weather resistance, and very low maintenance costs. Relatively high cost polyester, high initial tooling costs, and a shortage of labor sufficiently skilled to work with plastic are some of the disadvantages.

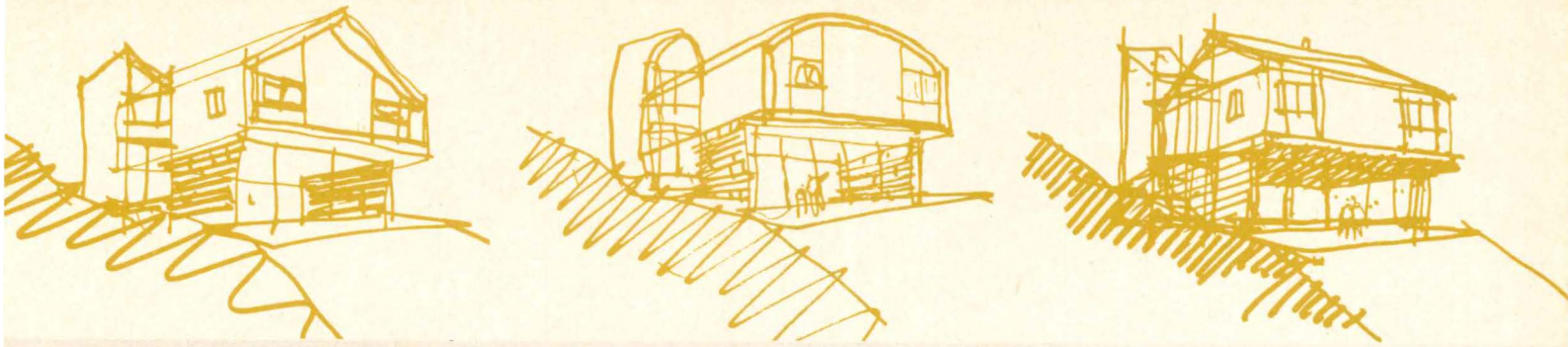
The strength of the fiber shell system lies in its use of a plastic impregnated paper honeycomb as a structural core rather than the glass filaments of earlier systems. The resin impregnated paper honeycomb is sandwiched between two sheets of gypsum wallboard laminated to structural and nonstructural fiberglass sheeting (see diagram). The entire module is fabricated on a large, vertically rotating mandrel, which facilitates the alternate applications of sheet fiberglass, wallboard and honeycomb. An excellent strength-to-weight ratio is achieved by use of these lightweight materials.

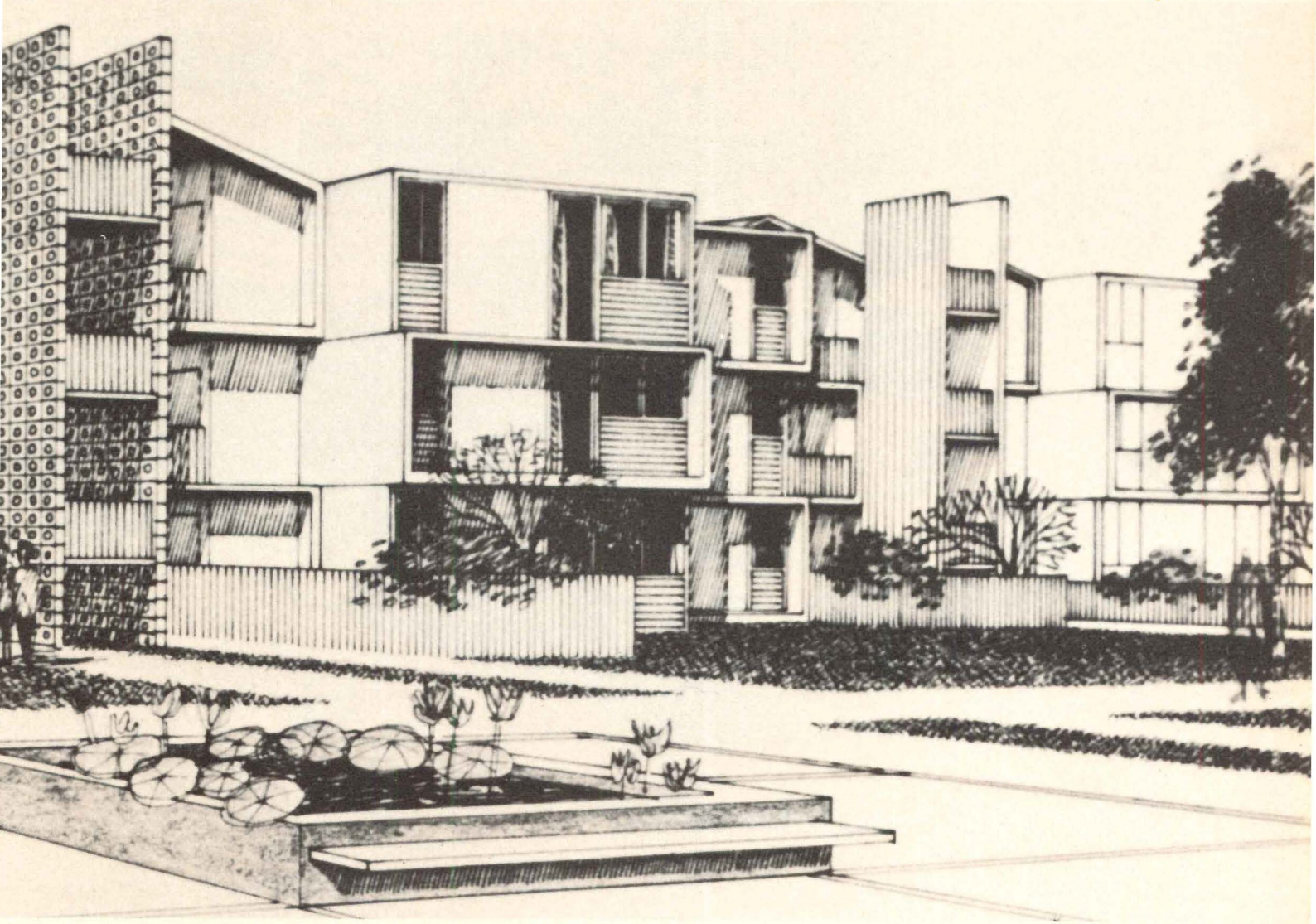
In production, a variable mandrel provides the architect with the flexibility to fabricate pentagons, hexagons, and virtually any geometric shape. The modules are strong enough to adapt to single, double, or multifamily housing.

An unlimited variety of surface textures and colors are possible. The average unit construction time is approximately four hours.

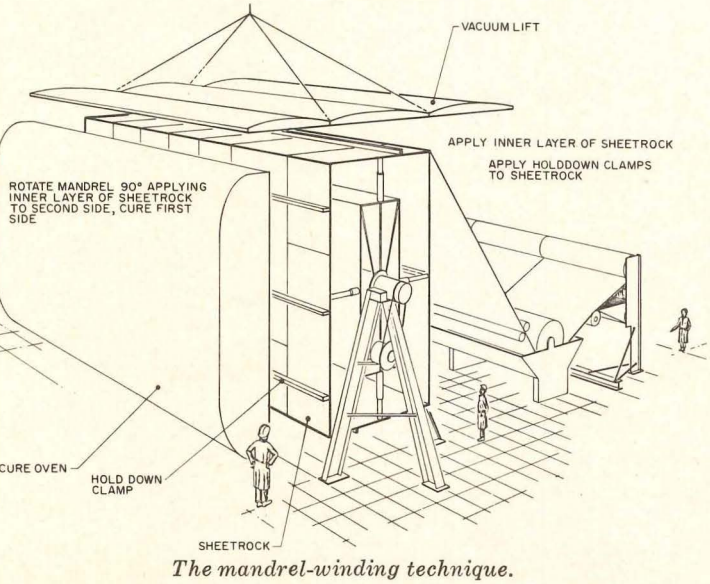


A cross section of the structural walls.

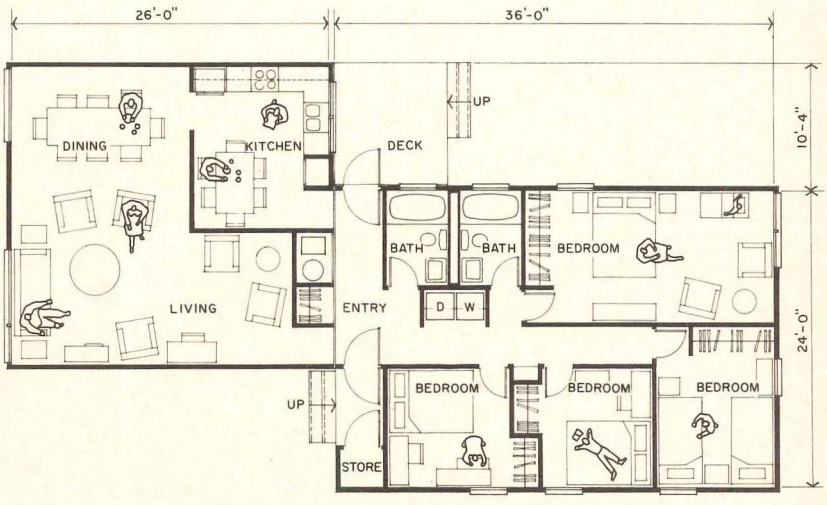




Rendering and sketches, above, show some of the forms and massings possible using the mandrel-wound construction system.

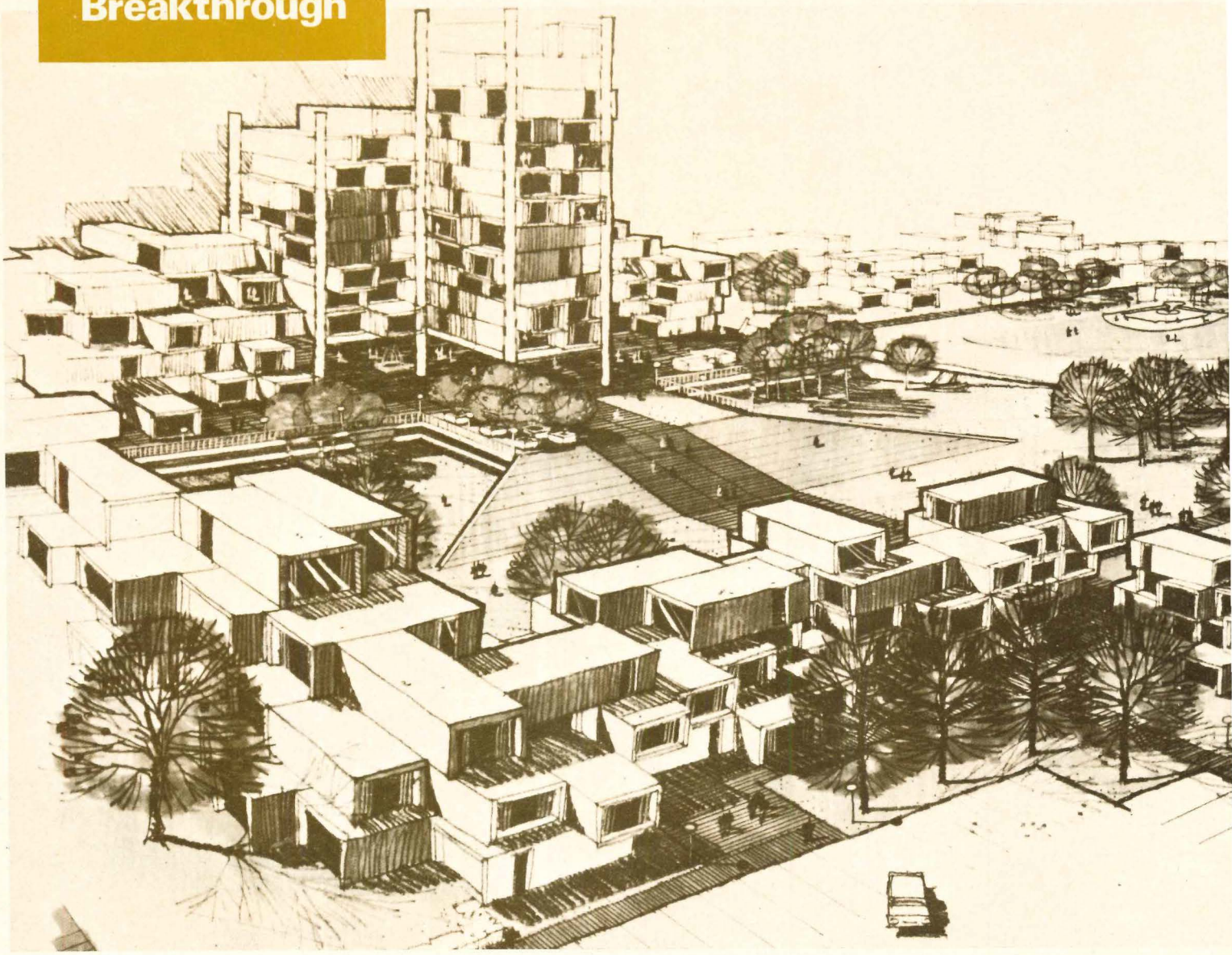


The mandrel-winding technique.



Floor plan of a four-bedroom duplex.

Operation Breakthrough



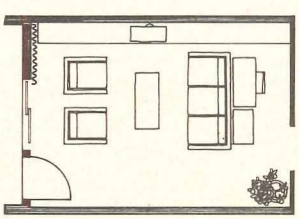
Architect: Edward Durell Stone

National Homes Corp., *Lafayette, Ind., Producer; Edward D. Stone, Jr. & Associates, Land Planner; Professor James W. Whitehead, Sociological Consultant; Semer, White & Jacobsen, Government Relations; Praeger-Kavanagh-Waterbury, Structural Engineers; Cosentini Associates, Mechanical and Electrical Engineers; Computer Applications Inc.*

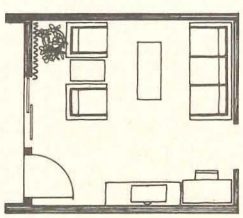
The factory-produced volumetric system designed by Edward Durell Stone will surprise (even stun) those used to his marble-covered office towers.

The system employs three planning units: a living unit, utility core, and a bedroom unit. All units have 14-ft widths; the bedroom and living room, however, come in three different lengths and the totally prefabricated utility core, 14′ x 14′, comes in three different arrangements.

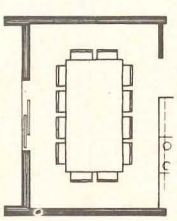
Using these nine standardized di-



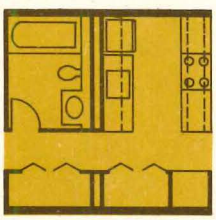
LIVING ROOM
132 X 183



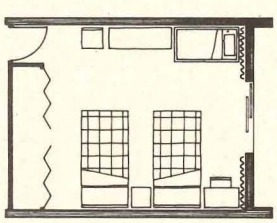
LIVING ROOM
132 X 143



DINING ROOM
132 X 811



CORE
140 X 140 OVERALL



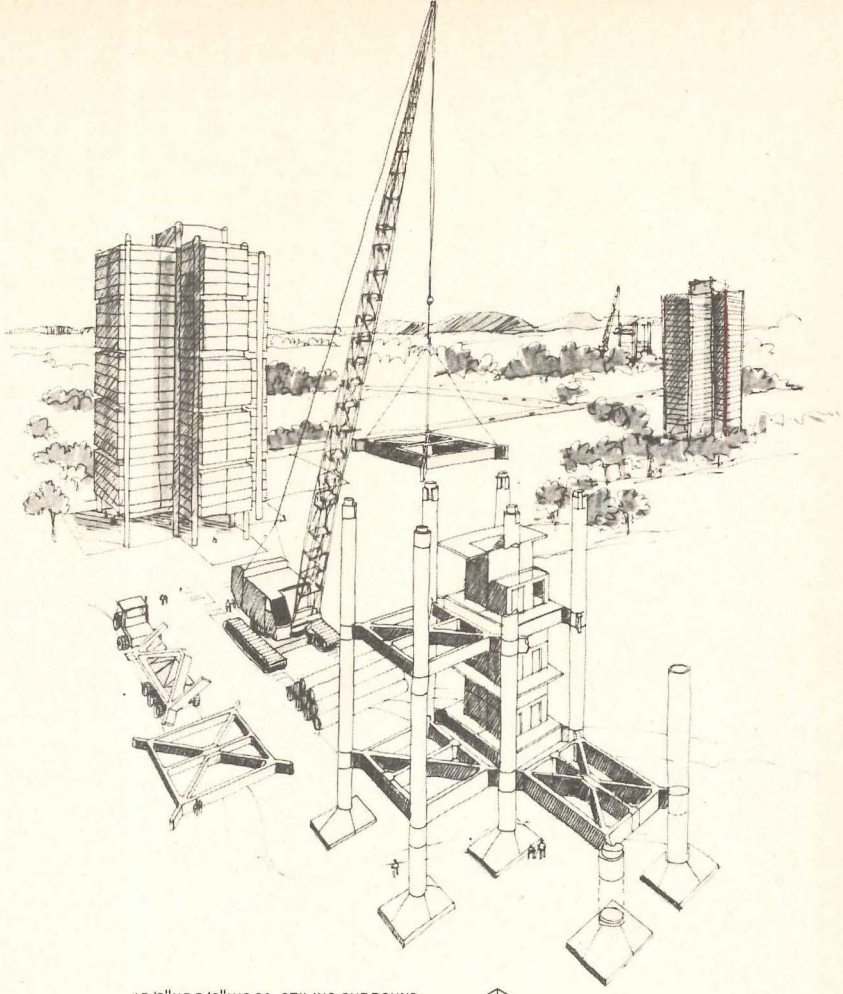
BEDROOM
132 X 145

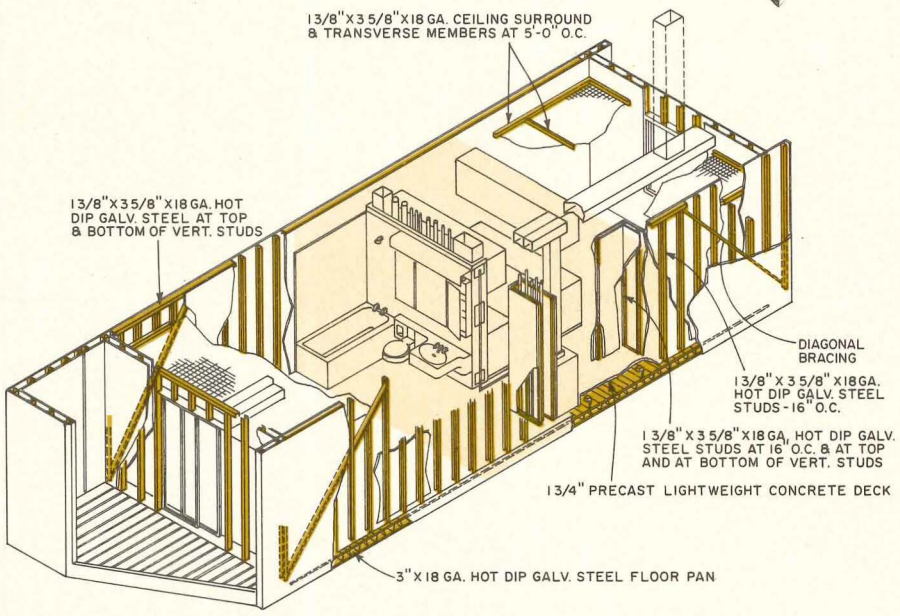
Living, bedroom, and utility cores come in this assortment of standardized dimensions. The utility core has three different

mensional volumes, various assemblies are formed at the factory to create a box, then trucked as a package to the site, and pooled to create a dwelling unit. (The 14-ft width violates trucking restrictions on state highways: negotiations are underway to obtain a variance.) The pooled units can be arranged vertically or horizontally as town houses, garden apartments, or high-rises. The size of the assembled dwelling units may range from one to four floors per unit, and from a one-level studio apartment to a six-bedroom multiplex. A computer-based inventory system at the factory programs the kind and quantity of units needed for the assemblies on a given site according to the housing authority's directions.

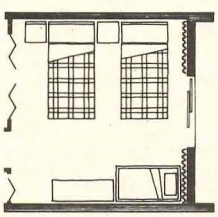
Each of the boxes can support others to a six-story height. For high-rise apartments, the boxes are plugged into a concrete frame. Precast concrete members in post-tension assembly create the rigid structure with horizontal framing every thirty feet. Columns are extruded round sections of precast reinforced concrete pipe with spread footing foundations.

The structure of the assembled box itself utilizes metal stud frame with stressed skin and a diaphragm floor system of corrugated metal pan over which is laid a deck of precast foamed concrete. A unique material has been proposed for walls — a sprayed mixture of polyester resin and natural granules that can vary in size and color for different textures. Other innovative features include ceilings of stretched fabric (roof is concrete), plastic molded kitchen cabinetry, and a vacuum flush toilet.

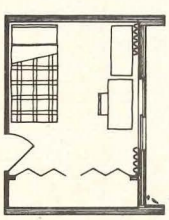




Isometric showing structural components. Three planning units (plus balcony module) are assembled together at factory and trucked to site as a box.

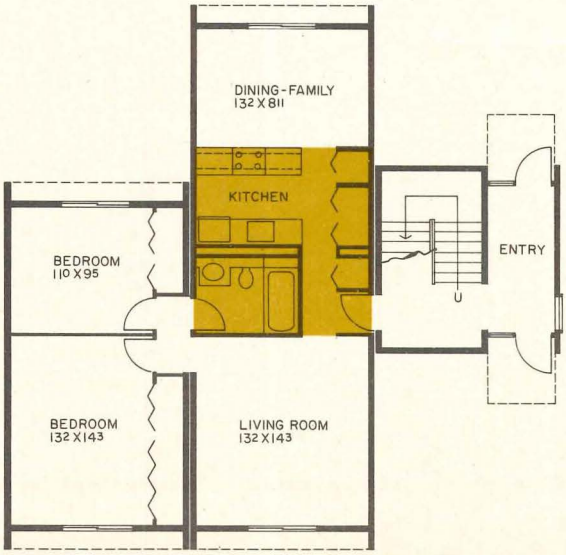


BEDROOM
132X121



BEDROOM
110X811

arrangements in its 14 ft module.



Typical multifamily low-rise floor plan, showing how planning units may be combined for ample living space.

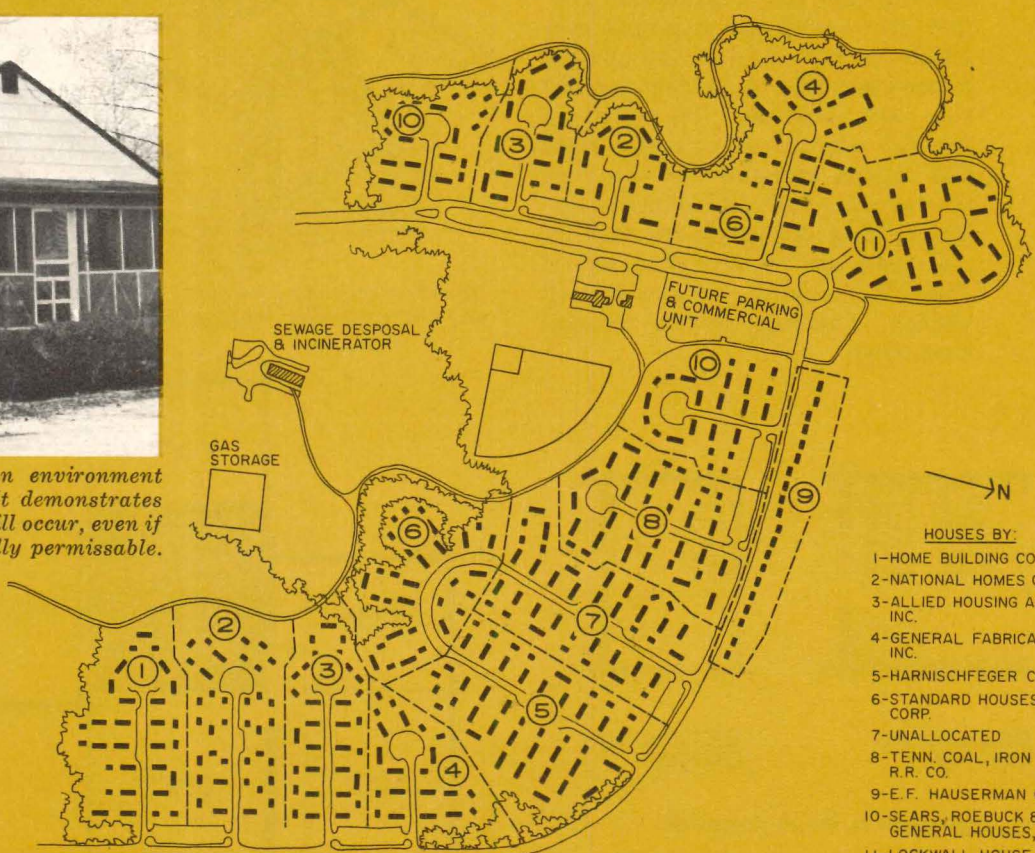


FORGOTTEN BREAKTHROUGH

1941 **A project similar to Operation Breakthrough existed in another time and another place: a defense housing scheme at Indian Head, Maryland used prefabricated housing as part of a program that incorporated many of the other "unique" features of today's Breakthrough.**



Indian Head can be examined as an environment which invites and nurtures change. It demonstrates that extensive modification does and will occur, even if not originally intended, but structurally permissable.



By H. Z. Rabinowitz and James Stanek.

Both authors were trained as architects. Mr. Rabinowitz is a systems analyst, and Mr. Stanek is involved with building systems.

The years 1940 and 1941 found the United States mobilizing for the war that it would soon enter. This mobilization of the military and industrial sectors caused a severe housing shortage for defense plant workers, civilians employed by the military and military families. Though defense housing did not require the quantity of units necessary today, the urgency of demand was much greater.

To supply the hundreds of thousands of units needed in a short time, the Government turned to industry for the production of prefabricated housing. Industry responded; in the first full year of the program 3½ per cent, or over 20,000 of all defense housing units, were prefabricated.

As part of the Defense Housing Program, the Government sponsored a large scale demonstration of prefabricated houses to be built on Government owned land at Indian Head, Maryland. Ten manufacturers were selected to provide a total of 586 units as quickly and as economically as possible, for use by workers at the nearby Naval Ordnance Plant. Moreover, the housing was to be demountable to insure that the Government would not be left with a "ghost town" at the conclusion of the war. The ordnance plant is as busy today as it ever was, and some of the original workers are still living in this development. A number of units were demounted and relocated as late as 1958.

Today, the country is faced with another housing crisis, and again the Federal Government has looked to industry for an appropriate solution; this time through the mechanism of HUD's Operation Breakthrough.

A comparison of the events surrounding the Indian Head demonstration and the assumptions and plans of Operation Breakthrough shows some interesting parallels. For example:

- Both programs proposed using the National Bureau of Standards as a testing and evaluation organization.
- Both use prototype sites to demonstrate and test prefabricated housing. In the present case, Breakthrough is providing ten such sites.
- Each program proposed that a large number of manufacturers would participate. Indian Head had ten manufacturers participating; Breakthrough produced 22 winning manufacturers.
- Both programs emphasized the participation of larger firms; both programs have been criticized for this reason.
- A reduction in the cost of housing, the amount of labor necessary, and an increase in the speed of the building process were prime considerations in both programs.
- Both programs provide funding for a large number of units; Breakthrough probably will build at least as many units as Indian Head on its prototype sites.
- Both placed great importance on the excellence of site design. Clarence Stein, one of the most innovative site planners of his time, designed the Indian Head site. Breakthrough issued a "Request for Proposal" and has also chosen site planners based on a strong level of excellence and innovation in site design.
- Some of the same firms that were involved in Indian Head submitted proposals for Breakthrough and one, National Homes, was among the Breakthrough winners.
- Walter Reuther, in 1941 president of the CIO, indicated that the CIO supported factory-built housing and would cooperate in every way. Reuther, now president of the United Auto Workers, is again a strong supporter of the prefabricated housing effort and has emphasized that the UAW will cooperate in this effort.
- Operation Breakthrough will make rent subsidies available for low and moderate income groups through HUD programs; at Indian Head, defense workers had to give 20 per cent of their income for rent and the rest was subsidized.
- Each program had the full support and encouragement of the head of the Federal agency responsible for housing.

Major differences between the two programs are few but significant. Only single story housing was used at Indian Head; Breakthrough will include both low- and high-rise building configurations. The wartime housing demonstration was based on design and product specifications which severely limited the form and size of the dwelling units; Operation Breakthrough is broad in scope and does not exclude any design, material, technology, or configuration.

Possibly the most important difference between Indian Head and Breakthrough is the thirty years separating the two projects.

Lessons Learned

Some conclusions, developed from an analysis of the prefabrication efforts used to help solve the housing crisis during World War II might well help guide policy today when similar solutions are being promulgated for our current housing "crisis." The Indian Head prefabrication demonstration, in particular, might prove a most valuable example from which to learn.

- The success of the defense housing prefabrication effort depended on the strong and continued support of the heads of the concerned agencies. John M. Carmody, the tough head of the Federal Works Administration and Federal housing czar during 1941, was a

vocal and enthusiastic supporter of prefabrication. He initiated a division to be primarily concerned with the use of prefabrication in defense housing and staffed it with his young protegés. His very espousal of innovation was to be his undoing and without him, prefabrication, though it survived, was never really to flourish. Carmody did not head the FWA for very long. He was transferred in December, 1941, to the Maritime Administration. A contemporary publication noted that "several of his critics in public housing circles had long been gunning for Mr. Carmody."

Prefabricated housing, however, was still controlled by the FWA and 42,000 units were projected for 1942. The Government acted quickly. Two complete defense housing reorganizations and infusions of red tape effectively cut down the power of the FWA and the prefabrication effort. Building prefabrication had lost its chance to become a major industry, though it survived the war quite well on its own merits and despite its critics.

- The most successful applications of prefabrication are by those organizations that have had the most experience in the field. Indian Head is a very good example of this lesson. Manufacturers who had been producing prefabricated housing performed well. Their units were delivered on schedule, were put together quickly, and were well constructed.

Other manufacturers, with no experience in the prefabricated housing field, delivered their units late, needed a large amount of on-site labor, and produced houses of lower quality construction. One of these manufacturers lost his "financial shirt" at Indian Head in what almost became a "boomerang" for the prefabrication industry.

- The value of "demonstrating" what is happening every day is dubious.

Twenty thousand prefabricated units were completed during 1941 in more than 40 projects in 18 states. Why 586 had to be "demonstrated" at Indian Head, using existing technologies, is questionable. If built during 1940, when relatively few examples of prefabricated housing existed, the units might have been a valuable demonstration; in late 1941 this "demonstration" was already obsolete.

A demonstration must be innovative or its value is specious. The prototypes used in Operation Breakthrough should utilize innovations not commonly used in today's housing.

- A consistent and guaranteed market is necessary for high volume prefabrication to be successful. The success of prefabrication during the early 40s was intimately linked to obtaining Federal Government contracts for defense housing. Investment in plant and equipment necessitates guaranteed sales and high volume production. Only the Government could satisfy both requirements. When Government policy and financial support of prefabrication faltered, many prefabricators failed; during the war years there was virtually no non-Government market.

The Federal Government must take steps to provide a guaranteed and consistent market for prefabricated housing. In 1968 the Government directly subsidized 120,000 housing units of which even a small portion, if allocated to prefabricated housing, could serve as a great stimulus for that industry. If a portion of the FHA guaranteed mortgages (227,000 in 1968) were allocated to prefabricated housing, the industry would certainly be on a firm footing.

- Large scale use and broad application of prefabrication can only exist when the existing restrictions to its use are alleviated.

There were few obstacles to achieving the goals of the Defense Housing Program. The housing program was primarily administered by federal agencies (Public Buildings Administration, FWA, the Navy, US Housing Administration) and built on Federally owned land. Approval by local governments was not necessary in most cases; and when mandatory, approval was forthcoming — principally because of the wartime crisis.

Occasionally the building trades did strike locally against the use of prefabrication and, in fact, construction at Indian Head was somewhat delayed for this reason. Labor disputes, however, were minimized and agreements were reached. Again, this might have been a response to the wartime crisis. Though recent agreements between organized labor and manufacturers are a real breakthrough in the long-term labor opposition to prefabrication, the more insidious and subtle opposition of building codes and zoning still remains.

An effort parallel to the stimulation of prefabricated housing must be the reduction and elimination of constraints to innovation and prefabrication in housing. The funding of legal action against exclusionary regulations is necessary for prefabrication to succeed.

Operation Breakthrough is aware of all of the pitfalls, but in terms of effectuation Breakthrough may be limited. It needs more money, more staff, and the guarantee of a large market to insure that its goals can be reached.

The now almost 30-year old project at Indian Head shows that prefabricated housing can be a financially sound investment. It can also be durable, attractive, flexible, and very livable. This really is the most important lesson from Indian Head — that prefabricated housing can help solve our present housing crisis and still be *good* housing.

Photos: Courtesy of the Authors

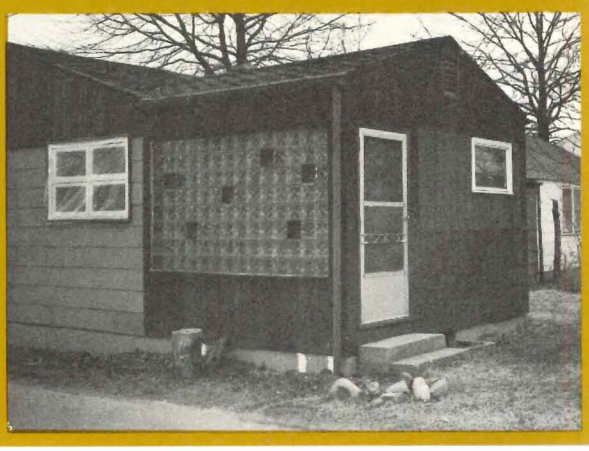
Although each of the ten manufacturers supplied their own design, materials, processes, and details, the program design specification outlined exact form, size, shape, and plan for all the unit designs (even the roof slope). Thus the exterior envelope was the only variable that allowed modification. Yet, considering the homogeneity of the original units, there is a startling amount of visible variety in the exterior aspects of the housing, principally in the façades. Often exterior walls were completely replaced, some because of low durability. Despite this factor, many original panels were covered with aluminum or asbestos for insulation and, according to the residents, for appearance.

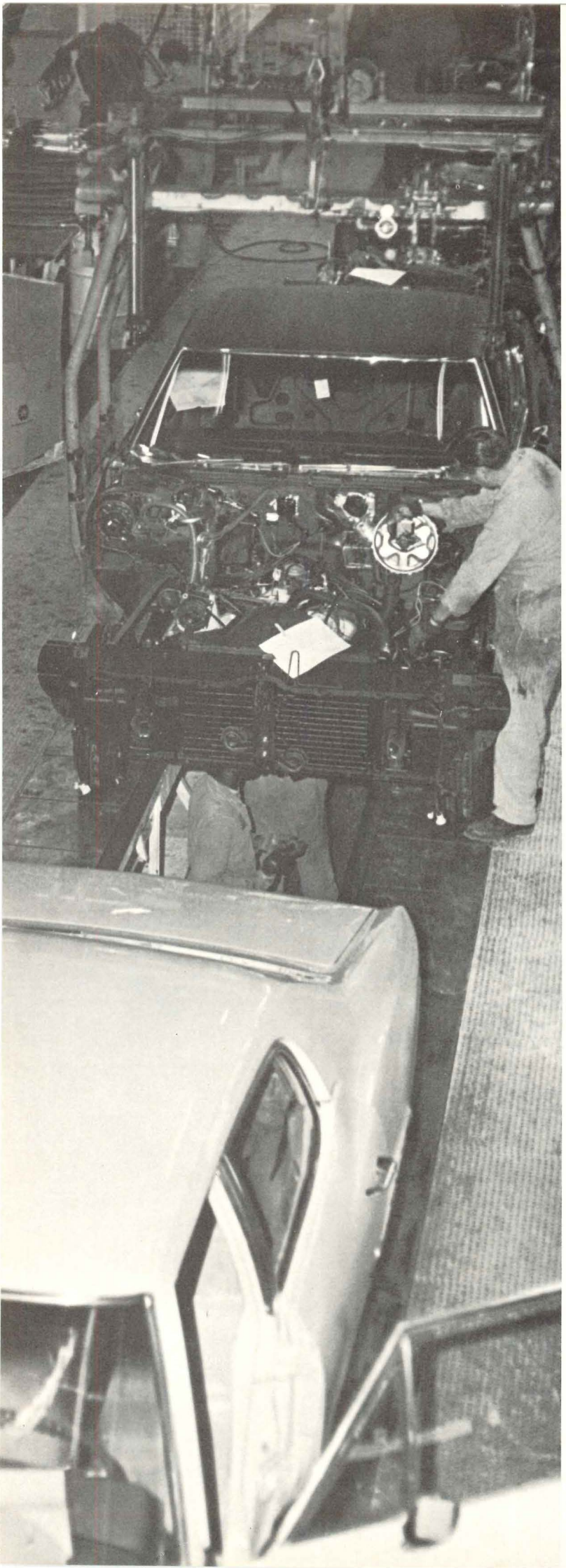






Because of the materials and configurations of exterior walls, modifications were easy to accomplish. Common changes included addition of window awnings, picture windows, shutters, tool sheds, carports, and fireplaces. The majority of residents also made major changes by adding space to the dwelling. Strangely enough, the incidence of major additions is higher for less durable and less attractive housing. Physical deterioration thus resulted in significant improvement.







General Contractor As General Motors

by Richard Bender

Richard Bender is Professor of Architecture, College of Environmental Design, University of California, Berkeley. Trained at Harvard and MIT, his work has moved from engineering to architecture to planning. He was the partner of the late Paul Lester Wiener, and has acted as consultant for technology to the National Commission on Urban Problems. Housing systems he has developed are under construction in Europe, Israel and South America.
The article that follows is the result of an interview with Mr. Bender by P/A Editor Forrest Wilson.

Millions of people around the world today are looking for a better life. They expect and demand a redesign of the environment to accommodate their needs and desires.

At the same time, an increasing number of those involved in building realize that our approach is at least partially responsible for our failure to meet these demands. We blame the industrial process for our chaotic environment but the blame belongs to the men and to the institutions who have still not learned to control that process.

A measure of our lack of control and lack of understanding is that we question even now, whether to proceed with the industrialization of the building process, and how to do so.

The New Contractors

A promise of new developments in industrialization comes from a group of major automobile and appliance manufacturers. They anticipate lucrative marketing potential in the desperate need for housing. They see basic similarities in the composition of an industrialized housing market and the market they presently serve, and their interest in housing is stimulated by the saturation of their own markets. The outlook of these corporations is realistic. An automobile plant is piled high with motors, glass, electrical equipment, tires, air conditioners, and the thousand and one parts and pieces that compose an automobile. These items come from all parts of the country; essentially automobile manufacturers are marvelous collectors and entrepreneurs. However, the assembly tools, like those of building assembly are still relatively primitive. The most important aspect of the automobile industry is in its organizational procedures.

While architects devote their energies toward decorating and manipulating traditional patterns rather than creating new homes geared more to modern living, major innovations in industrialization and the significant input that can come from industrial techniques are largely ignored. One of our favorite analogies makes this clear. "Wouldn't it be great if we could make houses as we make automobiles?" In recognizing what is special about the automobile industry, we may get a better picture of what an industrialized housing industry might be like when both the product and the process are in tune with our times.

We visualize the automobile factory as a gigantic tool, stamping sheet steel into automobile bodies one after the other — like a huge cookie cutter. The automobile factory does employ large machines. It utilizes many modern processes. But — the automobile manufacturer is a highly skilled, sophisticated general contractor — purchasing, collecting, and assembling the products of other manufacturers into finished automobiles.

The significant difference between the auto manufacturer and the general contractor is in the scale of operation. The automobile manufacturer has been able to take into account a set of forces that have never been applied to the operations of the fragmented housing industry.

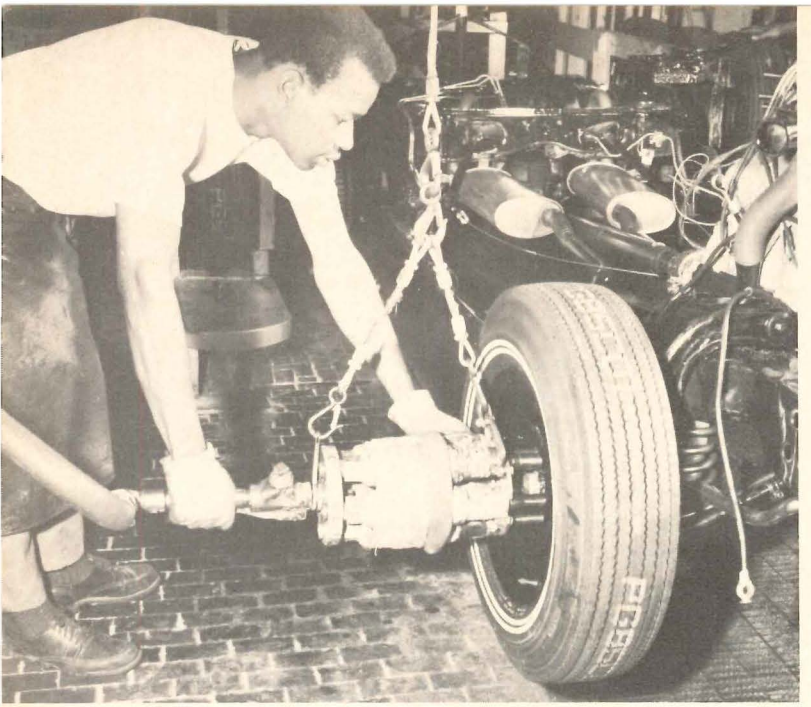
If we examine these forces and apply them to our concepts of housing industrialization, they will afford us an ideal of the new form that the industrialized building industry might take.

The Supporting System

First it is necessary to understand that the product must be put together as part of a much larger national — even international — system. The automobile industry could not exist without its entire support system; roads, service stations, international gasoline standards, parts availability, maintenance and repair, licensing arrangements, oil depletion allowances, acceptance corporations, insurance, and the set of controls in effect wherever the automobile goes.

Next, it is necessary to study the product and to begin to view cost and operating characteristics over a lifetime of use instead of our present fixation with first costs. For example, low gas mileage is an automobile selling point but low heating bills are rarely a selling point in the housing market.

Again, looking at the automobile industry we can see that new technologies must be applied to the assembly of parts as well as to their production. We are fascinated by the picture of building materials rolling off the production lines stamped, extruded, cast, or drawn. We think of industrialization as manufac-





In both automotive assembly and building construction highly engineered parts are hand assembled.

turing window panels and bathroom cores, ignoring the assembly operations. We take for granted that these highly engineered parts will be hand assembled under the most primitive conditions. Industries in which the entire process from raw material to finished product is done by machine — packaging, addressing, and shipping — are common. Yet beyond an occasional new crane or modified fork lift truck, no attempt has been made to develop machines that put buildings together.

The automobile industry extends its interest to much more of the life of the product than the building general contractor. The automotive company runs its own financing institutions, controls component manufacture, lobbies for highway construction and reduced fuel costs, trains mechanics, and controls new and used automobile sales through dealerships.

By reaching a general agreement about what the product will be like, the automotive manufacturers guarantee a market large enough to bring innovation to the production of all the parts that are assembled into the final product. For example, anyone with a better idea for a spark plug knows he has a potential market in millions of vehicles every year so long as production of his product meets the industry standards for coordination. The window manufacturer has much more difficulty in knowing how to end his window frame in order to make it useful to a wide range of varied building systems. The difference is one of degree. The spark plug is a high tolerance fit, the building uses a low tolerance "gooey, grouted, cover strip" connection. It is difficult to imagine how automobiles would work if joints had to be calked between spark plugs and engine block, if miracle adhesive was required to attach wheels to axles, or if we had to depend on a 20-year bond hot rolled roof. The magnitude of automobile manufacturing means enough total volume assured within a clear framework to support an enormous amount of design and research financed by a small cost per automobile.

The results are automobile roofs that don't leak, clear window openings, and a host of environmental enclosure solutions we do not expect in housing. These production improvements are achieved at the cost of standardization, lack of ability to vary the products according to individual user need, and an inability to change significantly during the product's lifetime. The system produces a product that is not exactly what anyone wants but is useful to all: it provides something that almost everyone can afford without the kind of massive subsidy on which the housing industry has depended for a generation.

Housing or Revolution

We are threatened with revolution if we don't supply houses fast enough. In desperation we turn to the automobile industry, our major image of mass production, and we misinterpret its significance.

In viewing automobile production as a huge cookie cutter, we have missed the point. The cookie cutter is not the machine of the future. But, if we look in the right places in the automobile factory, a new generation of machine will be found, perhaps the machine of the future that can be exploited by the building industry to bypass the entire generation of repetitive punch press houses everyone fears.

In 1947, Ford introduced an automated engine block machine in its Cleveland engine plant. This machine takes one step into the second industrial revolution. An engine block requires hundreds of operations — drilling, punching, scraping, etc. — and each operation may have variations in angle, depth, and diameter. The automated machine can vary each operation on each engine. Ten per cent of the original labor force makes a variety of engines twice as fast as the old mass production method.

The pulse of the entire operation is numerical control. A tape controls each operation to meet the program requirements of the day's production, making

the part to order and keeping a record of the character of the part made. These new, automotive production machines working together with automatic process control machines and automatic materials handling equipment provide a glimpse of the future.

Given these machine capabilities and combining them with new chemical synthesis technology, it is easy to imagine applications in housing. A blank could be made of new material, meeting requirements for both inside and outside walls (the housing industry equivalent to the blank that goes into the automatic engine block machine). The material would be conveyed to the panel machine, driven by a tape. The first operation would be to cut the outside perimeters to size. Then grooves for services would be cut, openings made, surfaces textured, and finishes applied. Because any shape can be cut, and wall perforations such as doors and windows can be cut anywhere, there is no need for identical panels. The panels are a mass-produced part of a family, but not identical twins. What a change! The justifications for modular building become irrelevant!

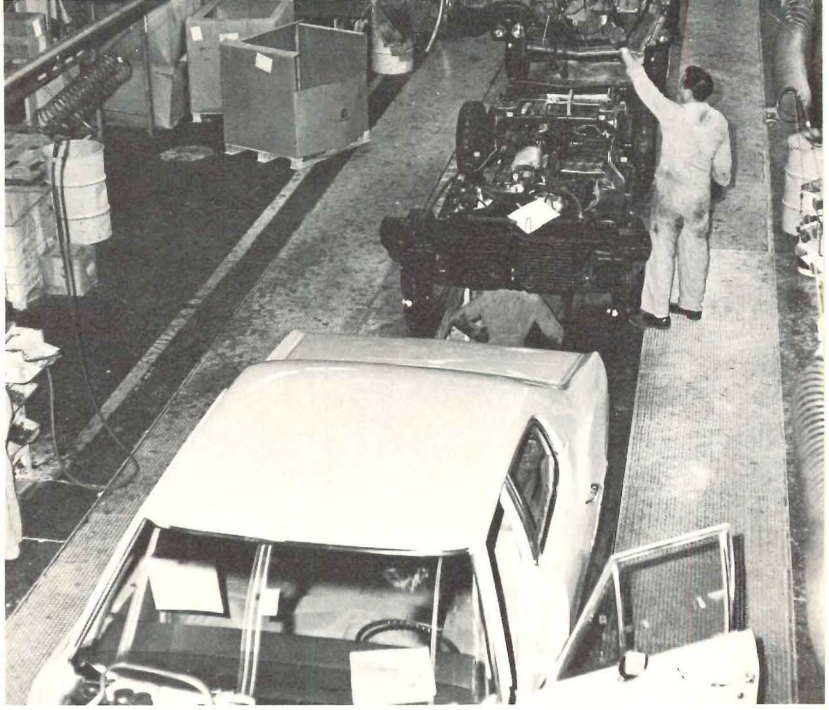
Modular building is an accommodation to standardized mass production machinery. When this is changed, there is no compelling reason to be restricted by universal modules. It is possible to have modular systems for individual buildings, interlocking modular subsystems, or no module at all. Standard size, shape, or color is no longer critical.

Since the present fragmented housing industry cannot put together a big enough market to make a number of different joint systems, we use basically the same one. All the red brick walls are more or less the same, the windows fit into them in similar fashion, and walls, floors, and ceiling meet as best they can.

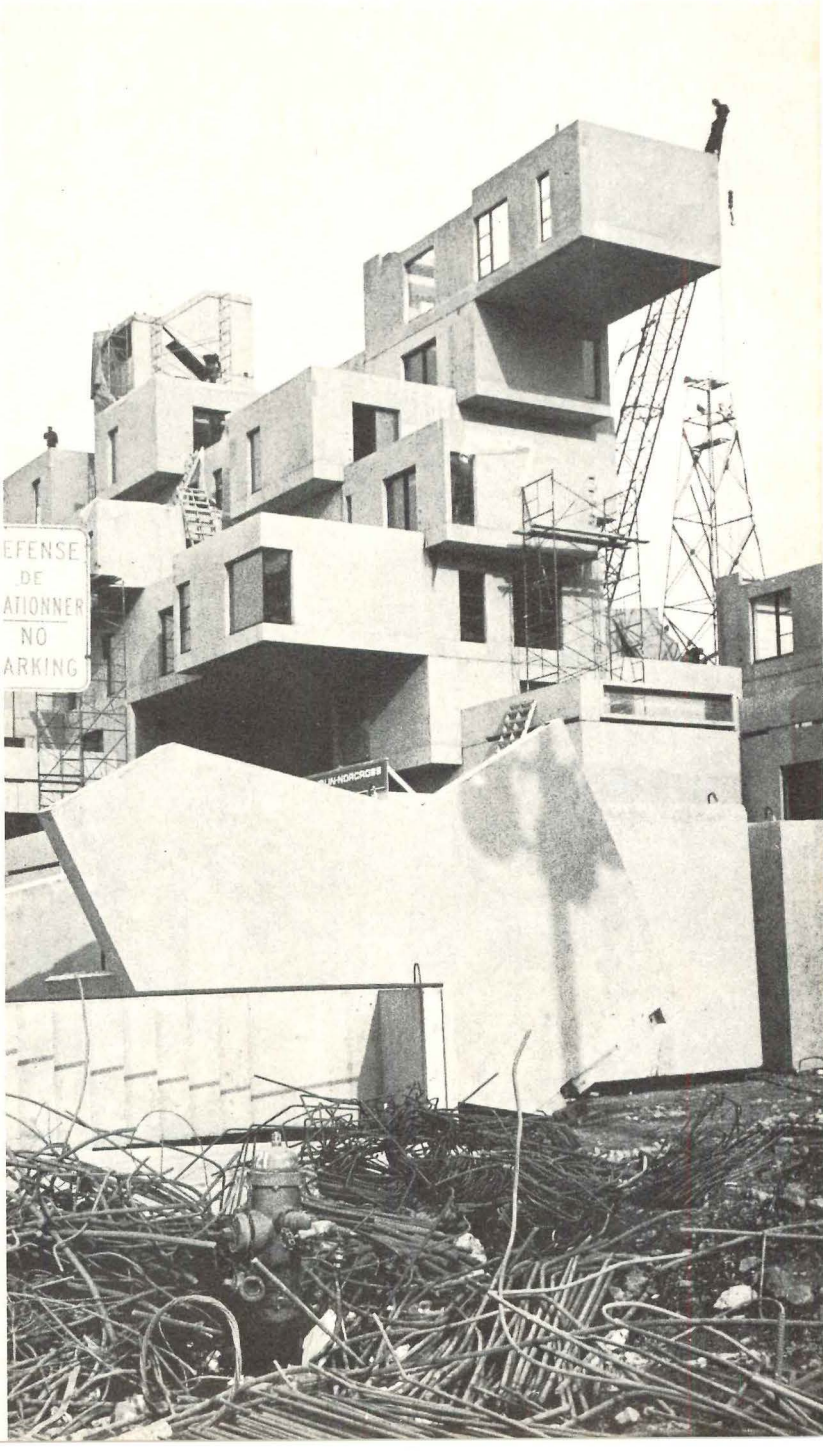
The wall panel machine would mill edges precisely, to whatever shape joint that is called for. There could be half a dozen such standard joints available and, throughout the building, joints would be consistent and adjusted to what was previously made. Machine tolerances will provide a far better fit than our carpenters rule calking technology can dream of.

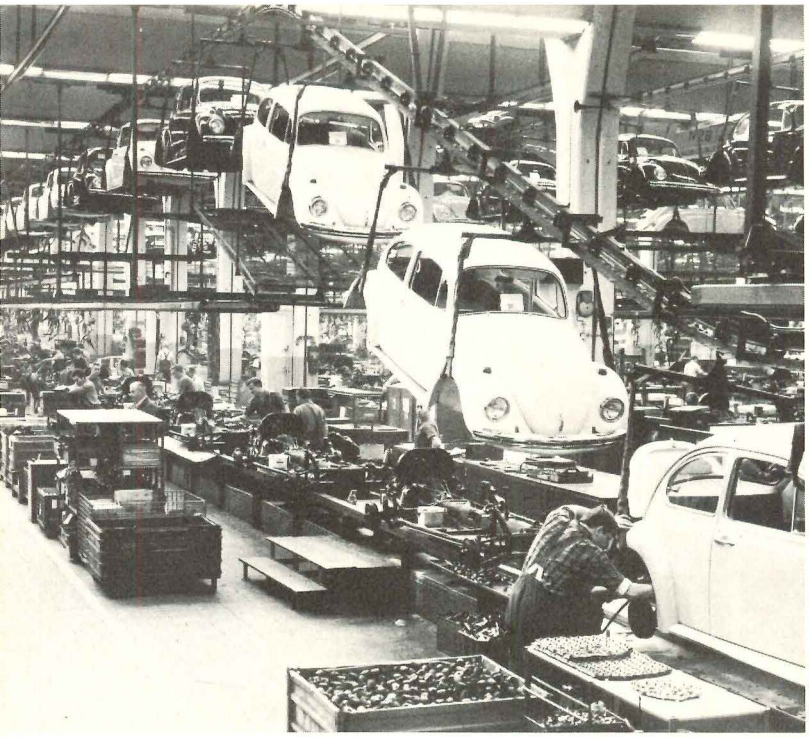
Our housing system might be limited to a six joint system, four surface textures, or twelve standard window openings, but these restrictions could be far less confining. If we look around at our ostensibly unlimited free choice in housing, we see innumerable brick buildings, each one built from individual sets of working drawings that reinvent each floor, wall, and ceiling every time a building is designed. Yet all of these buildings look the same. And most demonstrate identical qualities; high cost and poor performance.

The production system we are describing will resemble the automobile industry in many ways. Most significantly, it will not take the form of a single major manufacturer. Instead, it will be an integrated system of component manufacturers, subassembly and assembly plants, dealers, parts inventories, and service facilities under a framework

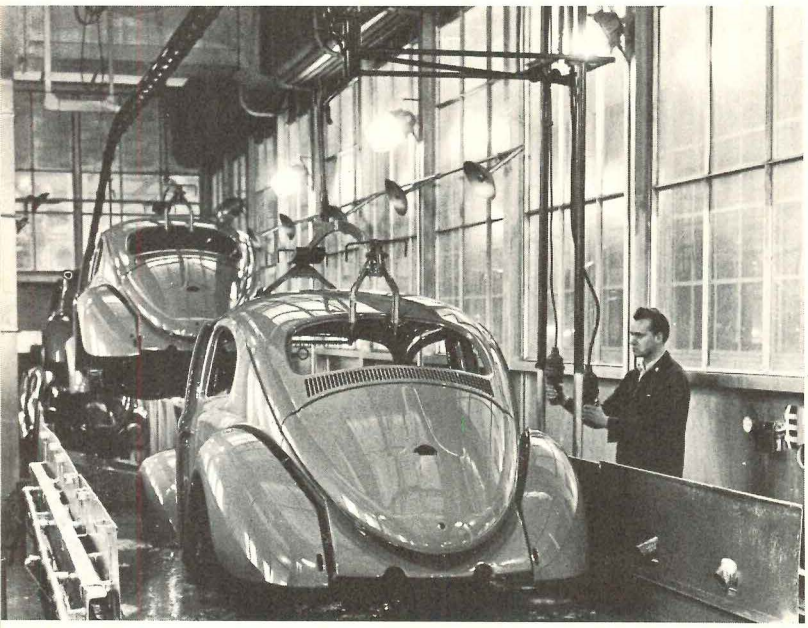


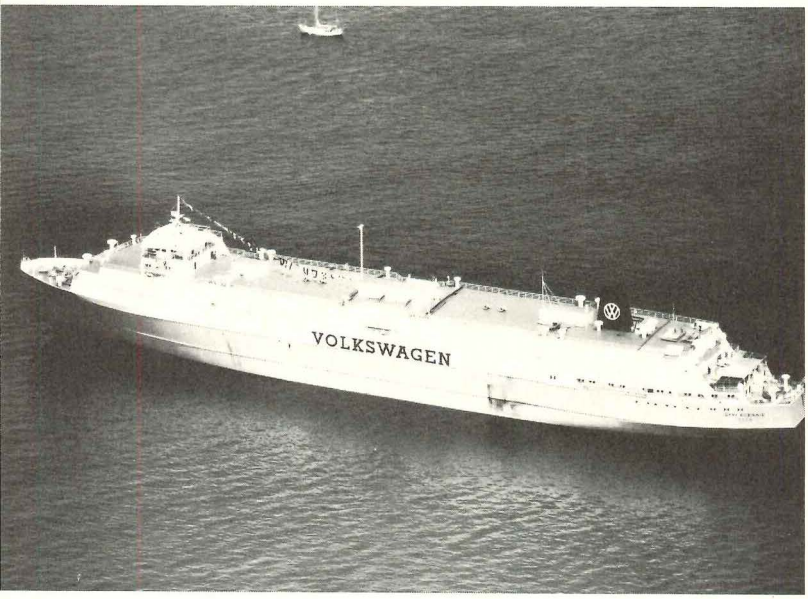
General Motors assembly line, Fremont, Calif. A different model car is produced every four minutes on the same assembly line (photo above).





Manufacturer to delivery system (photo above and center). Volkswagon assembly line, Wolfsburg, Germany. Specially designed ship to deliver 2550 VW's. VW's are driven on and off through hull doors and reach their "berths" by a series of ramps (photo below).





of nationally accepted standards.

Financing agencies will be part of this system as will insurance companies, and the many local businesses and institutions that are counterparts of highway commissions, parking garage operators, meter maids, and custom upholstery shops.

The implication that derives from this system is the possibility of retaining small businesses as well as the giants — all as part of the industry. The relationship would be similar to the present one between manufacturer, dealer, and service station operator in the automobile industry. A small locally-based business man would run service, maintenance, parts, and renovation equivalent to the gasoline franchise; a larger one would operate the regional dealership. All would be plugged into a national framework.

The Architect's Role

Designing the occasional custom-made "Ferrari" as well as the basic mass-produced "Model T," the architect will work in all parts of the industry. His role will be richer and more varied. He will design components for manufacturers, site plans, and community structures. Also, he will continue to do the job he does today. Only his tools will change.

Together with a client, individual or institutional, he will design a wide range of structures. But he will rarely require more than the schematic drawings necessary to translate his ideas into the system's language. Most of his time will be spent ascertaining human needs and designing for them. He will no longer have to instruct the building trades through drawings and specifications, or guess at cost estimates.

The final product from the architect's office using systems machines would not be a working drawing: perhaps it will be a punched tape, which goes to the contractor, who runs it through his machine to estimate cost. Copies of the tape are then sent to the milling machine factory. The tape goes through the machines, then copies are returned to the architect and the general contractor for filing. The same tape could be tested against building codes, insurance regulations, financing standards, and other requirements. It is then filed. Years later when building changes are desired (a new window, a larger door, or an opening for a solar energy unit) the panel would be removed from the structure, the tape taken from the file and used to modify the panel or machine a new one.

Of course this is a crude picture of how things will work. But it is clearly a more sophisticated procedure than the one presently in use. To work, it requires greater understanding of how operations are coordinated and brought together in modern industry, plus a grasp of the direction in which changes in building technology will move. Certainly it anticipates higher standards for building than present ones.

A New Process

If we consider changing expectations as well as present need, the estimate of 26 million housing units seems very low. Yet this is demanded of an industry already working to full capacity. The present housing industry cannot supply the demand. It has not proven capable of constructing low cost housing at all. The only reasonable solution to this seemingly insoluable problem is an entirely new industry producing a new product.

In housing, the general contractor is the equivalent of the auto body man. But he has been pushed into assuming responsibility for the entire building business. As you examine building procedures, you come to the realization that carpentry, which was once the key to the job, is now a very small part of the total house. The carpenter controls the pace of the project yet his responsibilities are minor compared to the total operation. His specialty is not essential to mass production. By contrast, in the automotive industry, the equivalent to the general housing contractor is not the body manufacturer or the engine man, but a specialist in coordination and assembly.

Skills involved in automobile manufacturing are basically similar to those that might be used in housing; mechanical cores comprising kitchens, bathrooms, air-conditioning, and basic electrical services require similar skills.

The reason we do not build houses as we do automobiles is that we have missed the implications of what automobile manufacturers do well. It is certainly not the finished product. In the end, measured against any real performance criteria, the automobile itself performs disgracefully. What we must realize is that the basis of the automobile industry's function is the very expertise the housing industry lacks.

Conclusion

Marshall McLuhen reminds us that it is characteristic of media to use an earlier medium for content. Books first used word-of-mouth stories, movies used books, and television used movies. Industrialized housing shows a similar hangup. We are seeking methods of using the most modern industrial processes to mass produce 19th-Century houses. For example, the mobile and sectional home industry uses mass production techniques but produces living units that are minimal by all standards of space, comfort, or flexibility. Most of the major proposals for stacking boxes on top of each other, sliding them into frameworks, or hanging them from masts are simply new techniques of building the same kind of houses we have had since Victorian times.

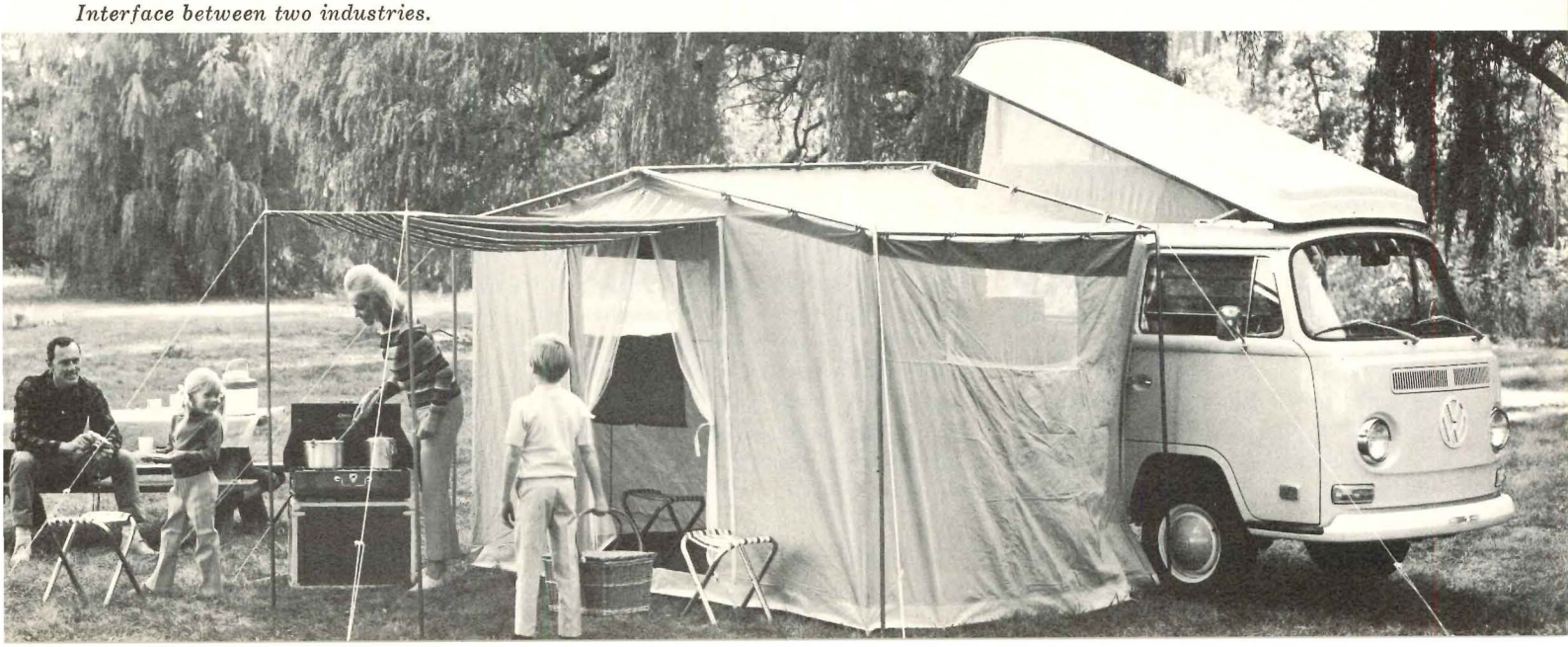
Yet, the last fifty years have shown many changes in living styles; more time is spent with radio and television in lieu of direct social contact. Technology has changed the storage, cooking, and preparation of food. We can heat, cool, and vary the climate. People travel more, do more, tend to live in their houses less than they did before. Recreation and leisure that took place in the house, the nearby garden, or the community often take place thousands of miles away in vacation areas. The dream house, as everyman's castle, becomes more of a camping site, as frequent job changes cause more frequent moves.

Despite all of these changes, we continue to build houses that are boxes — inflexible boxes designed sectionally for specialized functions, with little or no opportunity for individual families to rearrange, alter, or update their own homes as family size or needs change — as life style, hopes, and even dreams change.

It is clear that we have been "fiddling with the process" but not changing the product. A really significant change in one cannot be made without the other. Other industries have created a more effective product produced by a more efficient process. When we can do that in building, we will be using the New Technology to create a living unit in tune with today — one that may offer a new quality of life in our time.

Photography: page 138, Courtesy of General Motors (left), Courtesy of Western Wood Products Association (right); page 140, General Motors (left), F. Wilson (right); page 141, General Motors (top), F. Wilson (lower); pages 142 and 143, Volkswagon of America.

Interface between two industries.



Current Built-up Roofing Failures

Scientific research and analysis are needed today to determine the real causes of current built-up roofing failures says the Chief Specifications Writer of Skidmore, Owings & Merrill, New York City.

Built-up roofing, consisting of multiple plies of saturated felts coated with bitumen, is not a recent innovative esoteric material. It has been in use for literally hundreds of years. Yet, lately, there appears to have been an increase in the number of built-up roofing failures, and no one seems to know quite why those failures occurred. Countless theories have been proposed, yet little research has been performed.

Good roofing practice changes like women's fashions. One day water cut-offs are in, the next day they are out. Vapor barriers are extolled as a deterrent to failures, and then decried as a cause for failure. Asphalt-coated base sheets are introduced to offset blisters and cracks, and now the mix of asphalt for the base sheet and tar for the bitumen is questioned. Dead level roofs are the in thing one day and minimum roof slopes of ¼ in. are prescribed the next. Two-ply roofing is now being promoted to help solve some of the problems of four-ply roofing. Various types of roof insulation materials are being looked at with a jaundiced eye as the culprit for roof failures. Taped insulation joints are recommended by some to reduce tension cracking in membranes and are denounced by others. Organic felts, asbestos felts, and glass felts have their adherents and their opponents. It turns out that 15-lb felts now only weigh 13 lbs and should be specified as type 15 or number 15. Channel mopping to permit escape of vapor is recommended by some, while full mopping is championed by others. Graveled or slagged surfaces are preferred by some and smooth surface roofing is suggested by others. Test cuts of roofing are required by some manufacturers and denounced by others.

This listing of roofing practices that are in one day and out the other, or are promoted by some and denounced by others, can go on endlessly. Some reasons why failures have occurred have been brought to light, but for the most part there has been relatively little research into built-up roofing systems.

Built-up roofing systems appear to have been handed down to us as having been concocted like some witches brew. Why 4-ply? Why number 15 felts? Why 25 or 30 lbs of asphalt or coal tar for cementing felts? Why 60 or 75 lbs of asphalt or coal tar for surfacing? What is significant about these numbers? Has there been a scientific investigation to determine what these numbers should be?

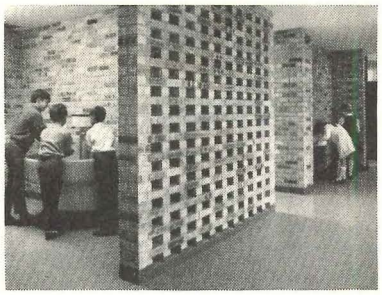
If built-up roofing were a new material offered to specifiers today, manufacturers of these materials would have to provide a multitude of physical characteristics, laboratory tests, successful installations, and other pertinent information before they would be specified, if at all. Yet here is a material, in use for centuries, fraught with possibilities of failure, which we continue to use without questioning whether there is a rationale to the system.

Some roof failures can be explained, but a successful built-up roofing membrane requires some basic laboratory and scientific research and analysis to provide us with its proper constituents. If a roof membrane is successful over a small roof, does it follow that it can be applied over acres of roof deck without any change in detail? If a built-up roof is successful over a cast-in-place concrete deck, does that mean it will be successful over insulation placed on the concrete deck? Failures resulting from such installations have disclosed the need for research to overcome these problems.

Have the ingredients of roofing materials been the same over the years, or have there been changes in the materials that have led to failures? Have organic felts composed of rags, wood, or paper changed in composition or percentage? Have asphalt coatings, which are the residues from the distillation of petroleum, changed? With petroleum coming from different sources, and with petroleum-cracking changes to produce different grades of gasoline, the asphalt residue used for roofing today may be quite different from the asphalt available years ago. Are the asphalts used to saturate the felts compatible with the asphalt used to cement the felts?

There are countless questions that can be raised about conventional built-up roofing to stimulate the manufacturers of these products into a determined self-analysis of their position in the market place. Other materials are being introduced that may eventually replace built-up roofing. Pious platitudes that built-up roofing materials have been around for a long time are inconclusive evidence that they will perform satisfactorily in varying situations and designs. Papering over built-up roofs with gilt-edged roofing bonds will not prevent failures.

The roofing industry must undertake some basic research to investigate built-up roofing systems and not built-up roofing failures, if conventional built-up roofing is to be used in the future.





Twin suburban schools "made to order" for Pre-teen education



ARCHITECTS, *O'Donnell Wickland Pigozzi, Architects, Inc.* · MECHANICAL ENGINEERS, *William T. Brookman & Associates*
PLUMBING CONTRACTOR, *Di Pietro Plumbing Corp.* · PLUMBING WHOLESALER, *Miller Supply Company* · FIXTURE MANUFACTURER, *American Standard*

■ Two new elementary schools, serving pupils from kindergarten through sixth grade, now offer the utmost in modern learning facilities in Chicago's suburban Deerfield.

Named Briarwood and Cadwell, the two schools have identical "core" facilities that include an all-purpose room, center for instructional materials, facilities for pupil-personnel services and offices. Two classroom wings, each with a distinctive look, project from the central core.

Briarwood School (shown) accommodates 375 pupils with 11 classrooms and two kindergarten rooms. The Cadwell School accommodates 400 pupils with 12 classrooms and two kindergarten rooms. Future expansion to 20 classrooms is possible at both Briarwood and Cadwell.

The buildings are steel frame, cavity wall construction, slab on grade, with a gypsum roof deck. Main exterior material is brick which carries inside and combines with painted concrete block partitions in the classrooms. All fixtures and facilities were carefully chosen on the basis of esthetic and practical considerations. Thus all sanitary fixtures, closet bowls, urinals and service sinks are equipped with Sloan Quiet Flush II Flush Valves, selected for their acknowledged quality, quietness, dependability and low maintenance costs. Sloan flush valves are recognized as a mark of excellence in any building. To be sure your new building has this same Sloan quality your architect-engineer should specify and insist on Sloan Quiet Flush II Flush Valves.

SLOAN
FLUSH VALVES

SLOAN VALVE COMPANY • 4300 WEST LAKE STREET • CHICAGO, ILLINOIS 60624

On Readers' Service Card, Circle No. 393

By BERNARD TOMSON AND NORMAN COPLAN

Construction Contract Insurance Requirements

P/A's legal team discusses the hazards involved when an architect assumes ultimate responsibility for insurance requirements that are included in a construction contract.

In assisting the owner in preparing a construction contract, an architect may assume responsibilities which are difficult and complex and, on occasion, outside of his professional competence. We have urged the owner to assume ultimate responsibility for the contents of the construction contract and that that document be approved by the owner's counsel and other representatives. One of the specific areas for which the architect should not take ultimate responsibility is the insurance requirements to be included in the construction contract. Insurance coverage in the construction field is not a simple subject, and the architect should not be expected to provide the sole counsel and guidance upon which the owner relies. The owner's reliance should be upon his insurance counselor.

The hazards implicit in attempting to provide appropriate coverage on a construction project is illustrated by a recent case in New York (L & T Contracting Co., Inc. vs. Aetna Casualty and Insurance Co.), N.Y.L.J., Vol. 16, No. 120, p. 14. The plaintiff in this action was an excavating contractor who had entered into a contract with an owner (Modern Improvement Corp.) to perform certain excavation and backfill work on a particular site. Approximately one month after the work, including backfilling, was completed, a foundation wall on the site collapsed. The owner commenced a lawsuit against the contractor, asserting that the wall was cracked and ultimately collapsed due to the negligence of the contractor and that the damages sustained by the owner were due to the failure of the contractor to perform his work in a proper and workmanlike manner. The contractor requested Aetna to defend the suit by the owner but the insurance company refused, asserting that the claims of the owner were not within the coverage of the policy and were expressly excluded under that provision of the policy known as "collapse hazard." The contractor was required to retain his own counsel who finally settled the case by making a payment to the owner. Thereafter, the contractor instituted suit against the insurance company, seeking to recover the sum paid to the owner, plus the counsel fees he had been required to pay.

The comprehensive liability policy which the contractor had been required to procure under its contract with the owner provided, in respect to risks covered by said policy, that the insurance company would pay on behalf of the contractor "all sums which the contractor shall become legally obligated to pay as damages . . . because of property damage," and to defend any lawsuit against the contractor arising out of such property damage "even if any of the allegations of the suit are groundless, false and fraudulent." However, by its terms, the policy did not cover property damage within the "collapse hazard" or the "underground property hazard" provisions of the policy. "Collapse hazard" was defined as "the collapse of/or structural injury to any building or structure due to . . . excavating, burrowing, filling, backfilling. . . ." The "underground property damage hazard" was defined as property damage to wires, pipes, etc. beneath the ground caused by mechanical equipment used for excavating, filling, or backfilling. The insurance policy in question also contained a provision dealing with completed operations. This provision, known as "completed operations hazard," provided coverage for property damage which arose out of operations or reliance upon a representation or warranty, but only if the damage occurred after the operations had been completed.

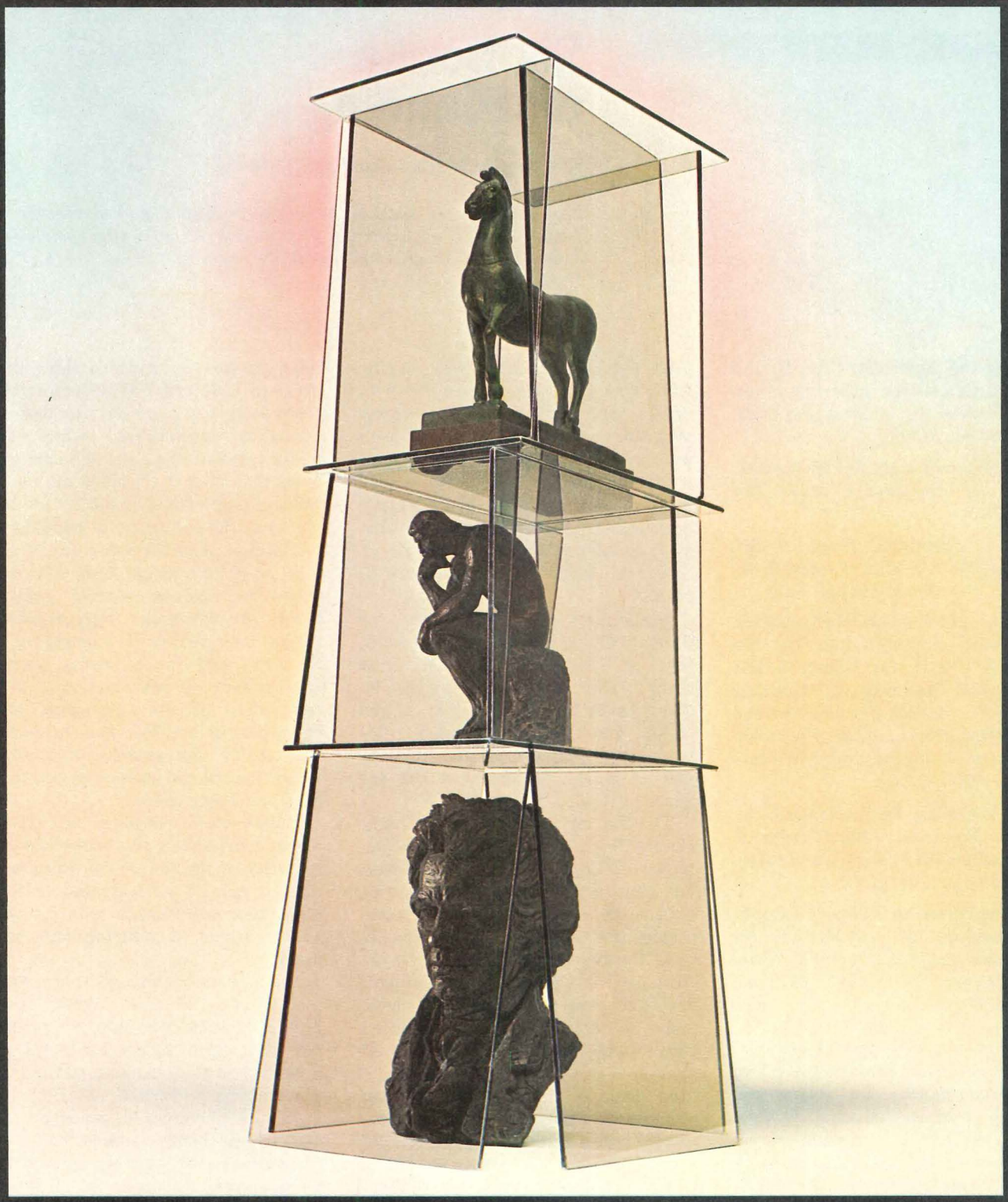
The issues to be determined by the court were first, whether the insurance company should have defended the suit even though the facts might indicate that there was no coverage under the policy, and second, whether, in fact, the damages complained of were excluded from coverage by the "collapse hazard" provision or were included under the "completed operations hazard."

The plaintiff's witnesses at the trial testified that the backfill work had been completed prior to the collapse of the foundation wall, that the wall had not been touched during the contractor's work, and that the wall was in good shape when the work had been completed. Based upon this evidence, the court concluded that the claim was covered by the "completed operations hazard" provision contained in the policy. This conclusion was apparently based upon the premise that the time when the collapse occurred governed the application of the policy, rather than the cause of the collapse. Thus, the "collapse hazard" exclusion which dealt with cause was not applied and the "completed operations hazard" which dealt with time was applied.

In further support of this conclusion, the court pointed out that the policy specifically excluded any liability assumed by the contractor under the contract, but excepted from this exclusion any warranty of the contractor that the work would be performed in a "workmanlike manner." The court asserted that since the owner had alleged that the work had not been performed in a workmanlike manner, the exception to the exclusion would seem to indicate coverage under the policy for this type of claim, even in the face of a specific exclusion of a structural collapse due to excavation or backfilling.

The court further ruled that the defendant's insurance company would have been obligated to defend the suit by the owner against the contractor even if the insurer was possessed of information, whether obtained from its insured or other sources, which may show the claim to fall outside the coverage of the policy. The duty to defend is governed by the allegations of the complaint and not ultimate liability. Consequently, the court ruled that having failed to defend the suit, the insurance company was liable to the contractor for reimbursement of the settlement amount paid to the owner and for the contractor's legal expenses.

On Readers' Service Card, Circle No. 383



The New Bronze Age.

Glaverbel Bronze: A glass for all seasons.

Glaverbel

GLAVERBEL (USA) INC., 75 PLANDOME ROAD, MANHASSET, NEW YORK 11030
GLAVERBEL CANADA LIMITED, 1550 MAISONNEUVE BLVD. W., MONTREAL 107, P.Q.

Six Books on Planning

Reviewed by Percival Goodman, FAIA

The reviewer, a practicing architect-planner and Professor of Urban Design at Columbia University, is currently completing a master plan of Queensborough Community College for the City University of New York.

Building the American City. By the National Committee on Urban Problems. *Frederick A. Praeger, New York. 500 pp. $10.00.*

Urban Dynamics. By Jay Forrester. *MIT Press, Cambridge, Mass. 280 pp. $12.50.*

Urban and Regional Planning. By J. Brian McLoughlin. *Frederick A. Praeger, New York. 312 pp. $9.00.*

Planning and Design Workbook for Community Participation. By the Research Center for Urban & Environmental Planning of Princeton University. *School of Architecture and Urban Planning of Princeton University, Princeton, N.J. 592 loose-leaf pp., illus. $15.00.*

Urban Dwelling Environments. By Horacio Caminos, John Turner & John Steffian. *MIT Press, Cambridge, Mass. 242 pp., illus. $17.50.*

An Introduction to Town and Country Planning. *Revised Edition. By A.J. Brown and H.M. Sherrard. American Elsevier, New York. 373 pp., illus. $25.00.*

Books on the city proliferate and here are six more. Some of these I've understood; others are beyond me. For the purpose of this review, rather than use my own notions as guidelines, I will use the report of the National Commission on Urban Problems appointed by Lyndon Baines Johnson in January 1967, now published and called *Building The American City.*

The purpose of this Commission was to study building and housing codes, zoning, local and Federal tax policies, and development standards, with the intention of providing useful information on slums, urban growth, sprawl, and blight. Johnson asked that the Commission not only study the problems but come up with solutions. Under the chairmanship of Senator Paul Douglas, hearings were conducted in over 20 cities and suburbs throughout the nation, testimony was gotten from over 350 witnesses, and an extensive research program on some 40 specific subjects was undertaken. What they found was the expected: when it wasn't drab, it was dreadful; when it wasn't hopeless, it reminded one of the Chinese couplet, "To secure a life of ease/you must work yourself to death."

In summary, the report says:

Slums: The anger of the slums is that of people disinherited from society. The urban problem can be described as the big city slum caught in the white suburban noose, compounded by problems of growth, population shifts, sprawl, and the expense of it all.

The big city looked like the only chance left for the rural poor dispossessed from the land by automation, but city slums turned out to be expensive prisons. Rents, for example, that appear low are actually not. Figured on a per room basis, or on a percentage of the investment, the rents may be quite high indeed, since so many people are crowded into small and poorly equipped spaces.

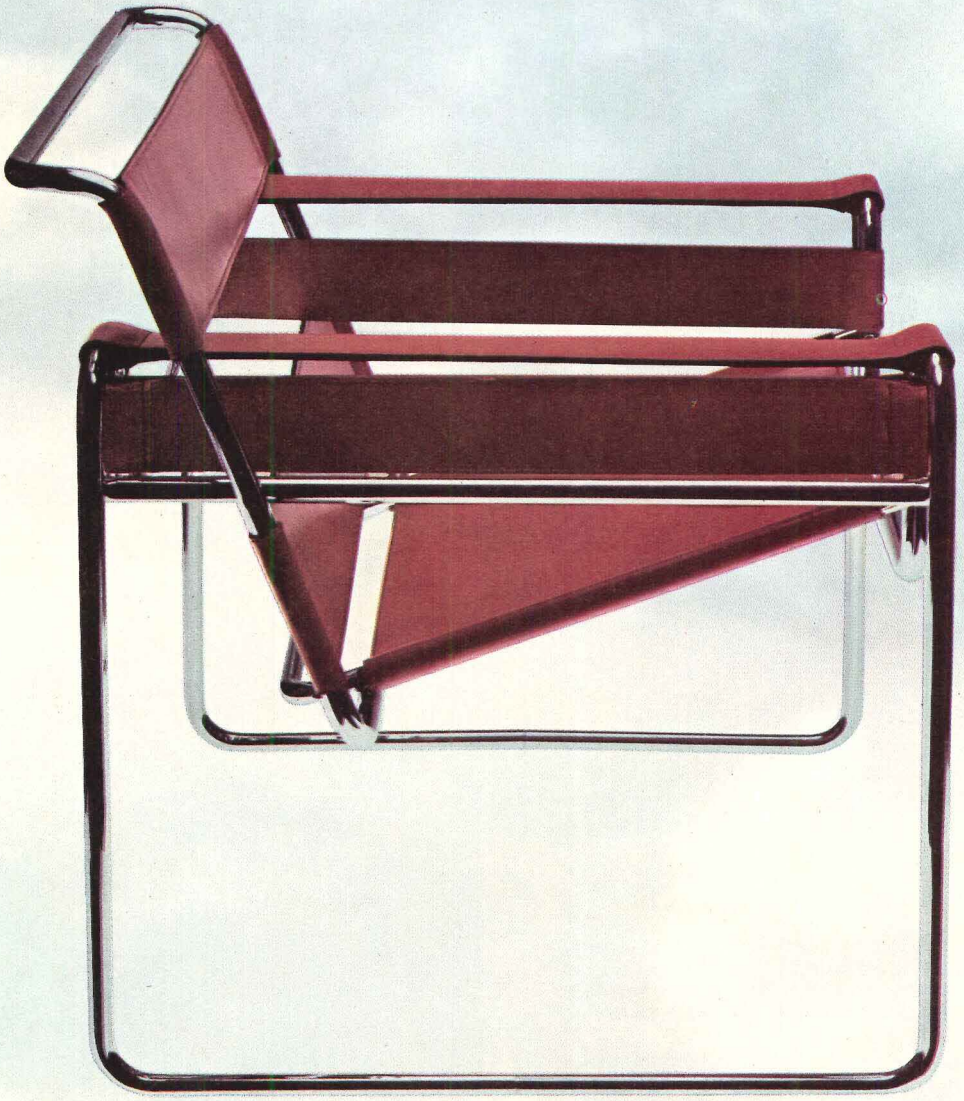
Housing: A third of the nation (shades of FDR) cannot afford adequate non-subsidized housing. Yet the Nation, in 30 years of public housing, built fewer units than Congress, in 1949, said were needed in the immediate six years following. Though a larger *proportion* of minority people are miserably housed, a far greater *number* of whites are in the same fix, since more houses were demolished by public action alone than were built in all Federally aided programs. A conservative estimate of substandard and overcrowded housing is 11 million units while our total housing stock is only 68 million units, yet the annual rate of new housing construction, public and private, has been less than 1.5 million per year.

Segregation: Projections show that between 1960 and 1985 central cities could have a 94 percent increase in nonwhite populations, while the white population in the suburbs will more than double (from 52 million to 106 million). The present 2.8 million blacks in the suburbs will increase to 6.8 million, about 5–6 percent of the total suburban population. We are, therefore, heading toward greater racial stratification. Desegregation is characterized by foot dragging at all levels and the problems remain critical for "we saw the ugly burnt-out urban streets that were still smouldering (in 1967) and we sensed the tension and anxiety in communities that would erupt not too long after our being there."

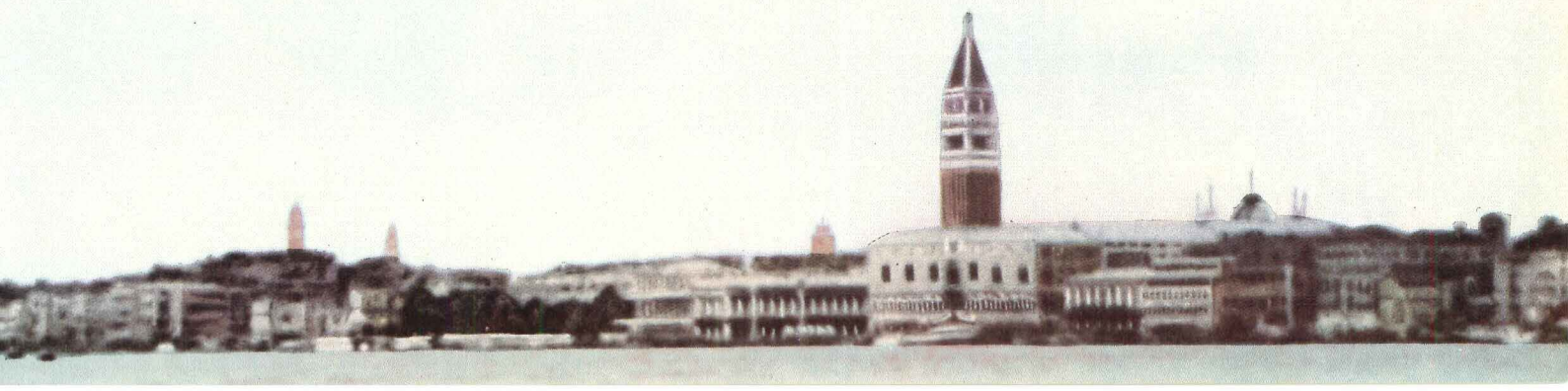
Unless major changes in public policy come about, the overwhelming majority of the future nonwhite population will be concentrated in central cities; one looks in vain for programs aimed at altering this tendency.

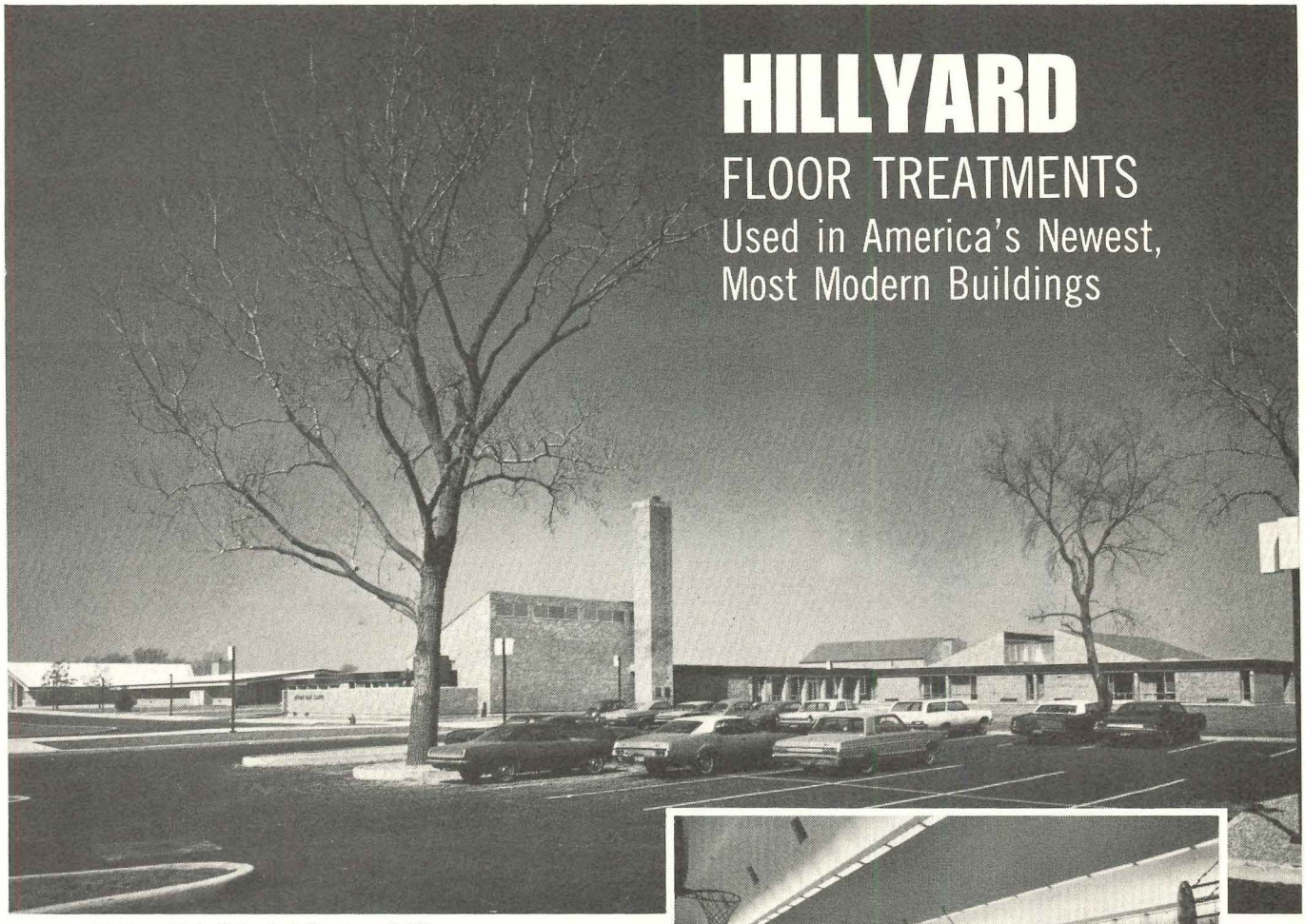
Jobs: A generation ago there were plenty of jobs that simply took brawn. Most of the jobs our society now offers are white collar and highly skilled so the economic picture for the unskilled worker is grim. In 1968, the unemployed generally, especially the black unemployed, were concentrated in our largest metropolitan areas. In some, only half the adult men had full-time jobs, a fifth of these earning less than $60 per week. Employment for the unskilled becomes less available as industries move from the city. In a recent year, 63 percent of all construction permits for industrial buildings were granted for locations outside central cities, while 37 percent of all office building permits were granted for locations inside the cities. "How ironical," the report says, "to see whites and blacks, white collars and blue, pass each other as they come and go to their work places."

(Continued on page 156)



Knoll introduces the Gavina Group with designs by Breuer, Takahama, Magistretti, Tippett, Scarpa, Matta and Castiglioni. Knoll International, Furniture and Textiles, 320 Park Avenue, New York, New York 10022. Knoll International operates in 30 countries. **Knoll**





Nathan Hale School at Crestwood, Ill.
Architects: The Perkins & Will Partnership, Chicago, White Plains, N.Y., and Washington, D.C.



Hillyard seals, finishes and cleaners are the superior choice for use on every type of floor in every type of structure—from schools to airport terminals, from office buildings and shopping centers to hospitals and nursing homes.

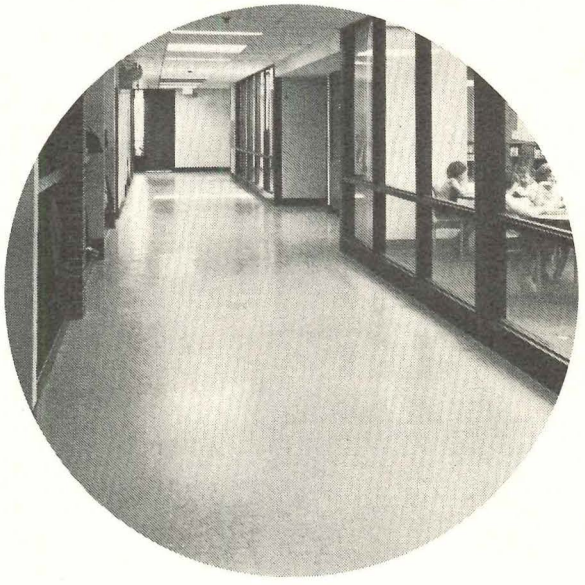
The reason: repeated proof that Hillyard products provide (1) better, longer-lasting protection for the surface; (2) enhanced appearance; and (3) easier, more economical maintenance.

WRITE FOR UP-DATED SPECIFICATIONS MANUAL

It contains a Sweets Architectural Catalog; Spec-Data sheets on seven widely specified products; and a treatment folder for every type of floor.

In ring binder form, each copy is numbered so that you will be furnished with new inserts as still later information becomes available. Write for your copy on your letterhead.

Hillyard architectural consultants are ready to recommend proper, approved treatments for the floors you specify; and to supervise application at the job site.



HILLYARD
FLOOR TREATMENTS
ST. JOSEPH, MISSOURI U.S.A.
Totowa, N.J. San Jose, Calif.
Minneapolis, Minn. Dallas, Tex.
IN CANADA: Calgary, Alberta
London, Ontario



SINCE 1907

The most widely recommended and approved treatments for every surface

On Readers' Service Card, Circle No. 357

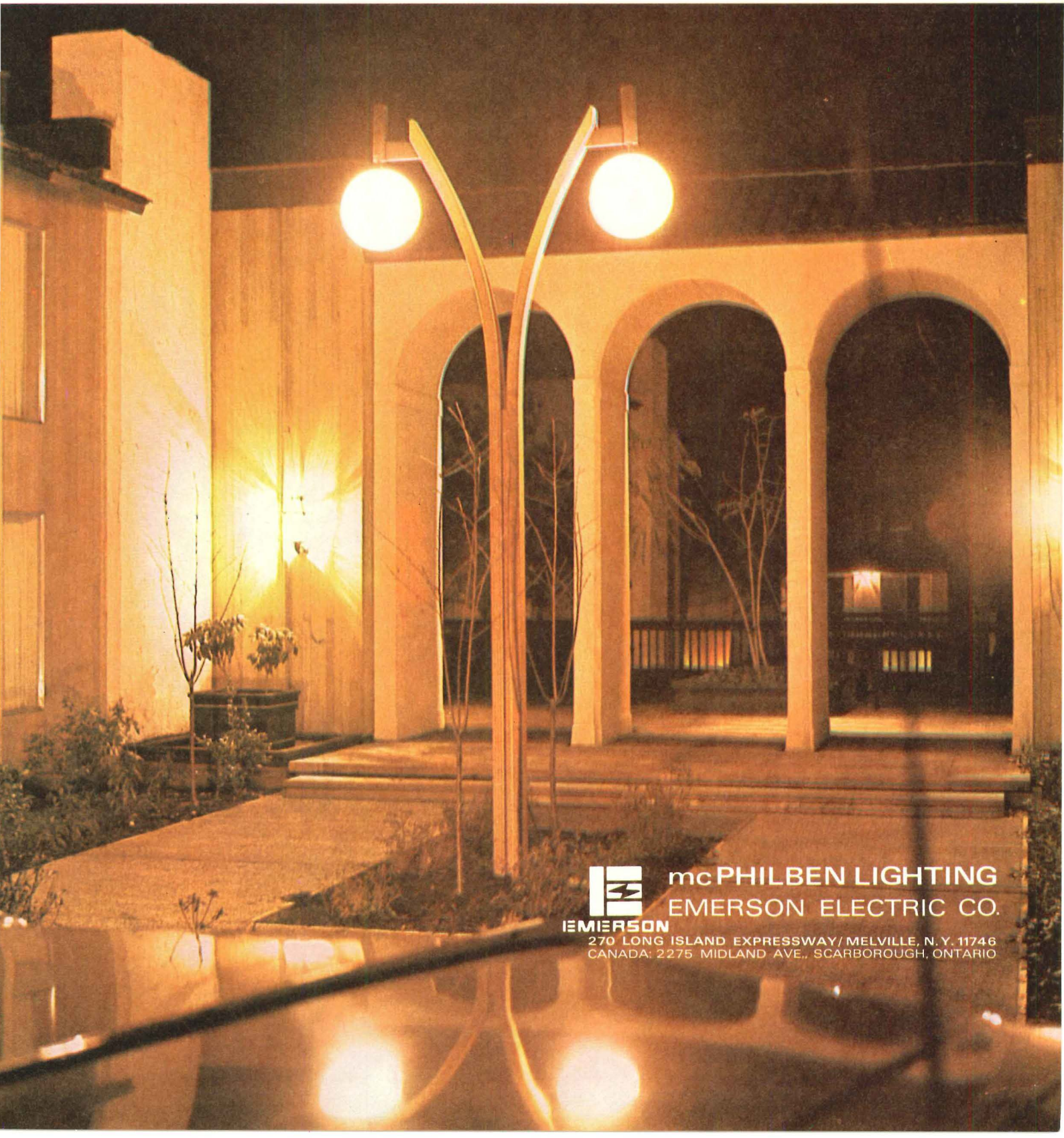
On Readers' Service Card, Circle No. 39

WOODSCAPE* LIGHTING....INSPIRATION

for lighting design continuity on walkways and parking areas of plazas and malls. 10 Line Woodscape combines the vivid contrast of black brackets and transparent or white spheres, with the warmth of laminated wood standards. The rugged, gasketed assembly of aluminum castings is triple ground and black anodized for permanent beauty. 10 Line luminaires are designed for mercury vapor or incandescent lamps. This graceful, airy form can temper the rigidity of granite and steel. Enhance the visual environment by exploring the many possibilities of this unusual sphere and standard combination.

mcPhilben Lighting

* Trademark of Weyerhaeuser Company





COLOR TINT CONTROLLED With MEDUSA WHITE...



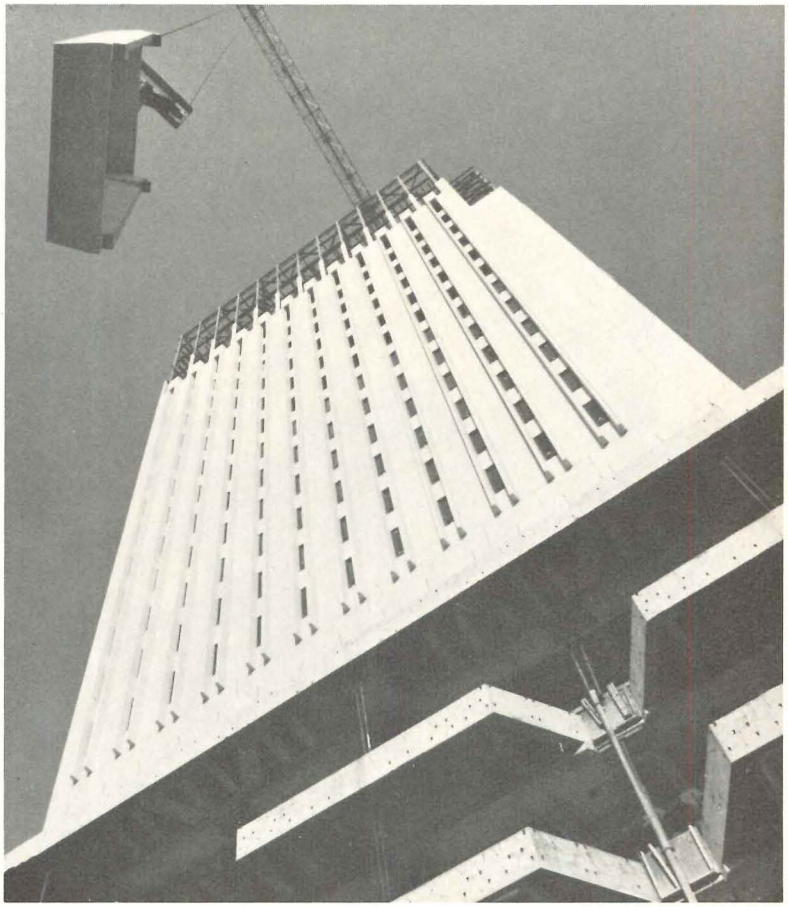
Bright new addition to the changing Cleveland skyline will require a total of 2,140 buff colored precast units. Medusa White Portland Cement with an umber pigment was specified to assure positive, uniform color control.

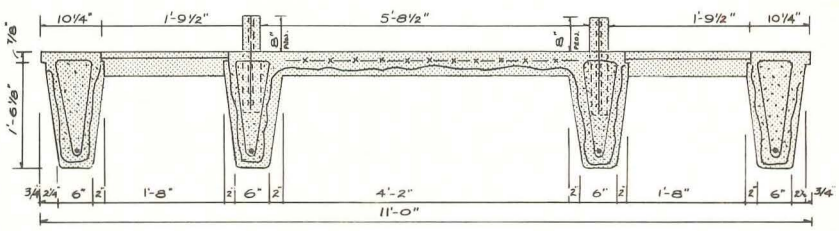
Shipped to Cleveland—three panels to a truck—precast units measure 11′ x 15′10½″, having a light exposed aggregate finish with even color throughout.

White cement is the most carefully color controlled portland cement produced to assure constant uniformity in the finished concrete product.

Precast units of Medusa White are moldable to the architect's creativity, easy to install, weather tight, fire safe, and require minimum maintenance. Write Medusa Portland Cement Company, P. O. Box 5668, Cleveland, Ohio 44101.

CLEVELAND STATE UNIVERSITY (Library & Faculty Tower) Cleveland. General Contractors: (Joint Venture) Blount Brothers, Construction Company of Birmingham; William Passalacqua Builders, Cleveland. Precast Producer: Marietta Concrete Company, Marietta, Ohio.





MEDUSA

Powerbond® must be good. It's what everyone else is trying to copy.

Behind Powerbond pile vinyl's extraordinary beauty, there's extraordinary ruggedness, abrasion resistance, resilience and easy maintenance. You see, it's the only commercial floor covering that combines the luxury of super dense, anti-soil pile of Anso™ Nylon by Allied Chemical with all the practicality of vinyl.

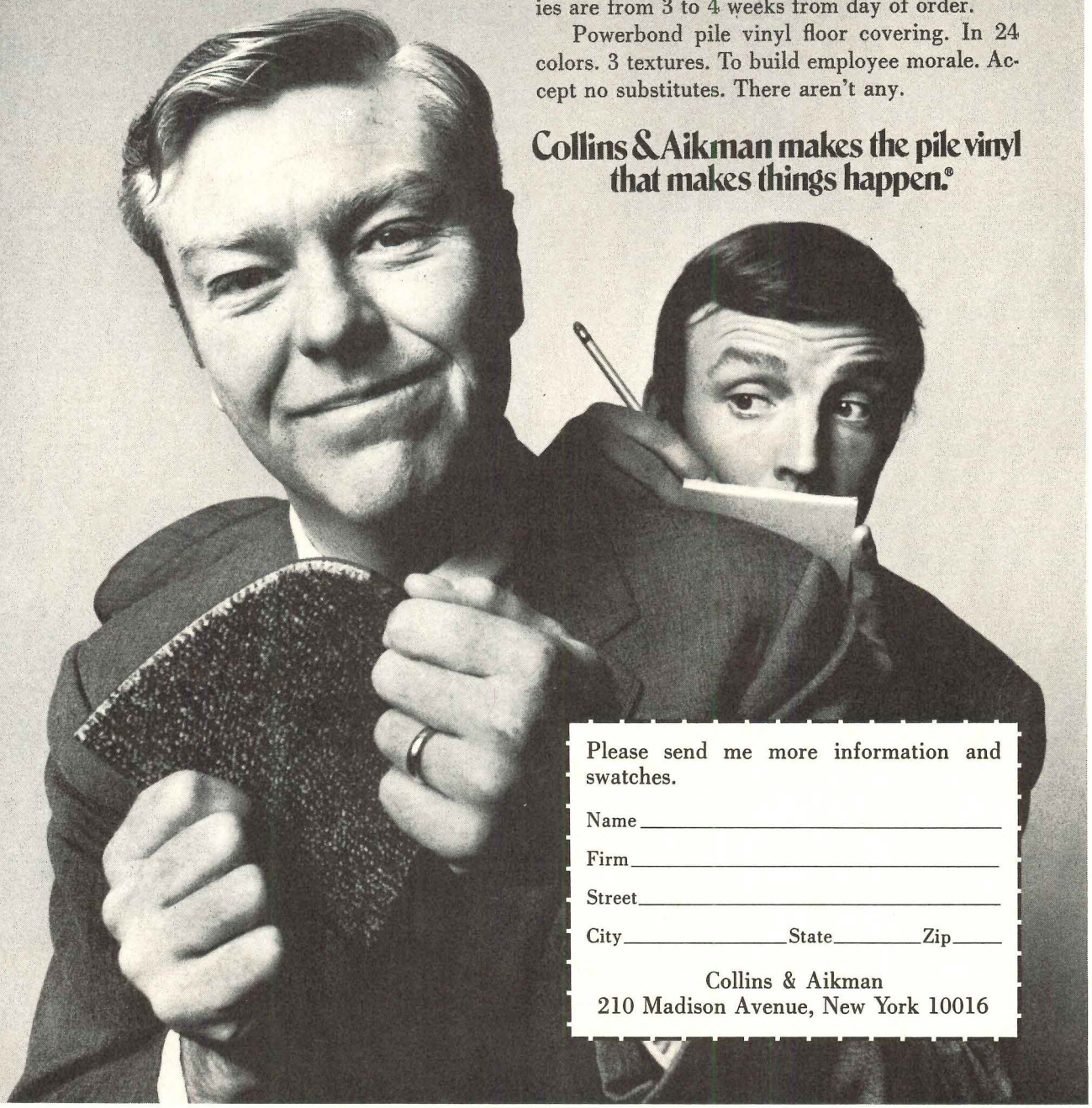
We fuse the two using several layers of vinyl. Besides durability, this also means absolutely no deterioration. Because Powerbond's closed cell construction prevents water—or any other fluid—from penetrating the base material. Matter of fact, ours is the only product that flushes back water.

Powerbond pile vinyl has excellent sound deadening properties. It cleans easily and has a remarkably "recoverable" surface after heavy wear.

Some other remarkable things are that we offer guarantees against excessive wear. Deliveries are from 3 to 4 weeks from day of order.

Powerbond pile vinyl floor covering. In 24 colors. 3 textures. To build employee morale. Accept no substitutes. There aren't any.

Collins & Aikman makes the pile vinyl that makes things happen.®



Please send me more information and swatches.

Name _____

Firm _____

Street _____

City _____ State _____ Zip _____

Collins & Aikman
210 Madison Avenue, New York 10016



TITANALOY adds new meter to the architect's verse — subtle accompaniment to his song. TITANALOY is contrapuntal to Nature's permanence, beauty.

TITANALOY, truly a designer's tool, is also a metal with both sleeves rolled-up. For this corrosion-resistant, zinc-titanium-copper alloy has no peer for roof, flashing, valley, gravel-stop or thru-wall applications.

TITANALOY weathers to a subtle even-grey patina compatible with any architectural style. Won't streak or stain adjoining materials. Far better than aluminum and galvanized sheet under corrosive coastal atmospheres.

TITANALOY has design, diversity and dependability in every ounce of sheet or strip. Pound-for-pound this proven alloy costs less than many metals which serve with far less distinction on the job.

Phone us for an Architect's File of data and samples. Look up the "vital statistics" on TITANALOY in the pages of SWEETS under 21g mat

MATTHIESSEN & HEGELER ZINC COMPANY
Main Office
LaSalle, Ill., Phone: 815/223-8600
New York Office
233 Broadway, Rm. 4015, Phone: 212/267-6542

M&H

Provincial House, St. Edward's University, Austin, Texas
ARCHITECT: Caudill Rowlett Scott, Houston, Texas
ASSOCIATE ARCHITECT: O'Connell & Probst, Austin, Texas



On Readers' Service Card, Circle No. 425

(Continued from page 148)

Big Cities Are Hard Up: In 1962, per capita expenditure of local governments averaged one-third more in metropolitan areas than elsewhere. In the 20 years following World War II, local government expenditures increased 571 percent, a much faster rate than the G.N.P. Metropolitan areas account for nearly three-fourths of all local spending. The concentration of low-income people in urban areas places an inordinate burden on each central city, since it must provide necessary expanded services at the same time that losses in revenue are magnified by the departure of middle- and upper-class residents, as well as many of its industries. All center cities have experienced a sharp rise in demand for revenue while their ability to produce revenue is either static or declining. The result can be, and sometimes is, slow strangulation of the city.

Politics: In State legislatures and Congress, there are strong signs that the old rural-urban rivalry is being replaced by a rural-suburban-city rivalry limiting the ability of the urban legislators to pass programs aiding the city. All this hastens the time when the only strong voice that might speak for the slums would be that of the Federal Government, "at best a distant and indifferent parent."

Since World War II, new units of local government were created by the thousands. On a map, these units make every metropolitan area in the country look as if it had been "nonplanned by mad men." Although quite small (about half cover less than a square mile), most have their own zoning regulations, school districts, and sewage treatment systems. How can a metropolitan area plan when, like Chicago, it has 1113 local governments? The fact is that America's great urban regions lack the power to guide their own development, for they can't decide on the use of open land, can't prevent the fouling of their air or water, nor assure equality in opportunity and education for their children.

Other Things: The report covers many matters, including building codes and their failings, the hopeless maze of restrictions in the building industry, and the development of new standards. A vital question is asked: What will be the consequences if we permit present economic trends to continue? The answer given is that any discussion of cost-benefit ratios is mere bickering in light of our need for a real political commitment to solve our problems. We can't measure the economic benefits of programs dealing with "human investment." We can't "cost out," for example, the returns in dollars and cents of a city relatively free of slums.

This is a massive report and, for those who need or like statistics, provides a convenient encyclopedia. Do you want to know average acreage of taxable real estate parcels in selected cities, the average extra cost of doubling floor joists under parallel partitions, costs of public housing in 1966, present and projected U.S. populations? You'll find it here. But if you're looking for meaningful solutions — ah, there's the rub!

The Commission writes: "We . . . are acutely aware, even more so than when we first met in January 1967, that this report itself will not change a slum or build a single unit of adequate housing. But a report can move people and government to action

(Continued on page 162)



On Readers' Service Card, Circle No. 320

On Readers' Service Card, Circle No. 432

wonders



Architect: Ernest J. Kump • Builder: B. J. Builders, Inc.

OF WOOD

in Pella de luxe casement windows

Pella®

First Class
Permit No. 1
PELLA, IOWA

BUSINESS REPLY MAIL
No Postage Stamp Necessary If Mailed in the United States

Postage Will Be Paid By Addressee

ROLSCREEN COMPANY
PELLA, IOWA 50219

The Pella look is the look of inspired design and expert craftsmanship.

If you like the look of PELLA De Luxe Casement Windows, wait 'til you see how much comfort, convenience and labor savings they offer!

Exclusive inside Rolscreens® roll up and down like a window shade. Storm panels stay inside sash year 'round. Insulating glass is optional. Removable muntins have horizontal, rectangular or diamond patterns.

PELLA De Luxe Casement Windows combine the beauty of wood with the extra strength of a concealed steel frame. Wood also provides the best insulation against cold and heat, condensation is minimized. Stainless steel weatherstripping seals against drafts and moisture. All exterior surfaces are factory-primed. Exclusive design permits masonry installation without wood bucks. Slimshade feature is available for solar control and privacy.

For more information on PELLA products, mail card below, or phone your PELLA Distributor (look under WINDOWS in the Yellow Pages), or see SWEET'S Architectural or Light Construction File. **ROLSCREEN COMPANY, PELLA, IOWA 50219**

PELLA MAKES QUALITY WOOD WINDOWS, WOOD FOLDING DOORS & PARTITIONS AND WOOD SLIDING GLASS DOORS

PELLA

WOOD DE LUXE CASEMENT WINDOWS



Architect: Coder Taylor Assoc., A.I.A.
• Builder: Ockerlund Construction Co.



Architect: Shattuck, Siewert & Assoc.
• Builder: O. J. Boldt Construction Co., Inc.

Yes, via first class mail, rush me more color photos and information about the following PELLA wood products:

Windows: ☐ Casement ☐ Double-Hung ☐ Awning
☐ Sliding Glass Doors
☐ Folding Doors and Partitions

Name _____

Firm _____

Address _____

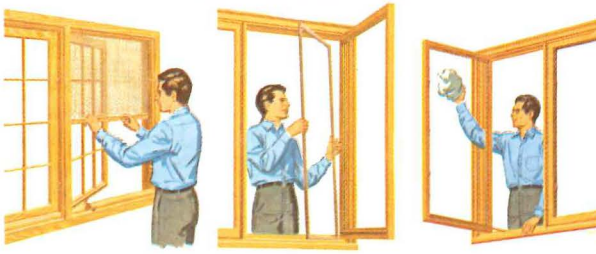
City _____ State _____ Zip _____

Telephone: _____

Also available throughout Canada. Printed in U.S.A.

NND-123

Window Care is So Easy!

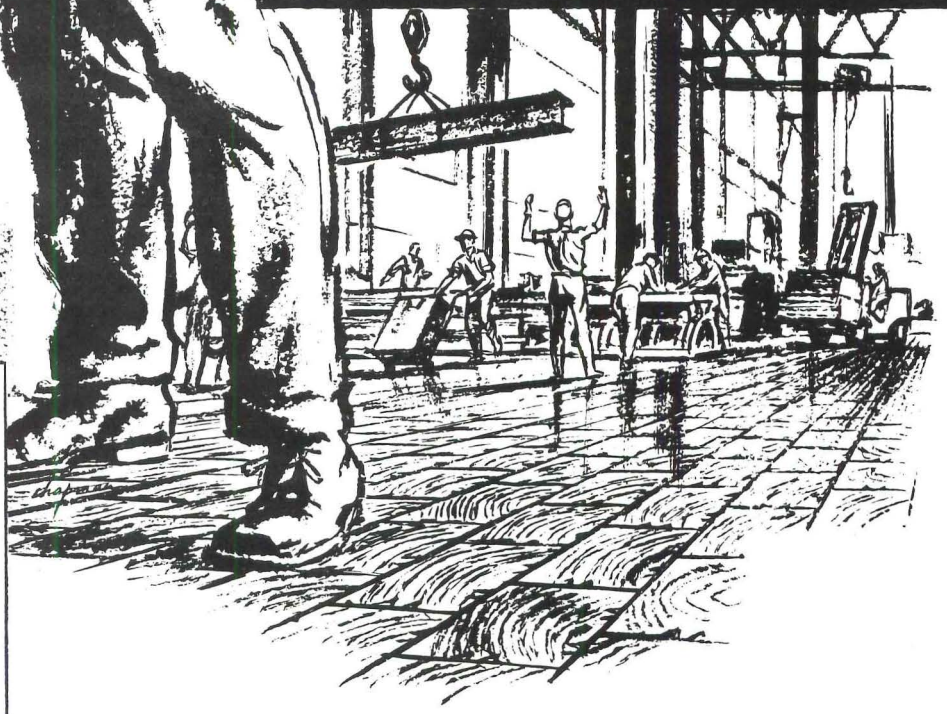


With PELLA De Luxe Casement Windows the screen rolls up, the self-storing storm panel is removed and all glass can be washed easily from inside.

MAIL CARD TODAY
Answered within 24 hours

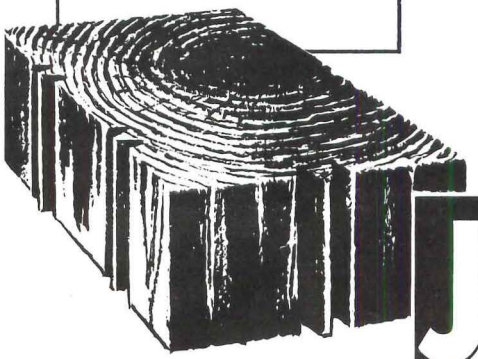


Plan a DUSTLESS building...specify KREOLITE® wood block floors



Check These Advantages

Comfortable... easy under foot. **Durable...** withstands heavy abuse. **Low Maintenance...** 1/3 cent per sq. ft. in 20 years. **Easy To Replace...** in sections or units. **Dustless...** protects bearings and finished parts. **Absorbs Noise. Insulates** against heat and cold. Easy to **Provide For Conduits Or Cables.**



KREOLITE wood block floors are dustless. They protect machinery and work-in-progress—help keep overhead lighting efficient and air clean. That's been proved. Write for a copy of highlights of this proof or let us entertain and convince you with our 20-minute, full-color sound slide film—"Magic Carpet."

Inquiries Limited to Continental U.S.A.

JENNISON-WRIGHT

JW®

THE JENNISON-WRIGHT CORPORATION

DEPT. P40 • P. O. BOX 691 • TOLEDO, OHIO 43601

☐ Please send a copy of Research Report Highlights

☐ Please call for an appointment to show the "Magic Carpet"

Name_____

Title_____

Firm_____

Address_____

WILSON-ART leadership at work... for you!



New Cuero

finish plastic laminate from Wilson-Art



A difference you can feel!

CUERO...the beauty and luxury of a Levant-type finish, plus the benefits and durability of plastic laminate.

On counter tops, bar tops, table tops, or a variety of applications, new CUERO finish plastic laminate adds new beauty...new depth...new dimension. Leathers look and feel like leathers. Solids take on more character as soft, subtle light reflections play across the restrained, but well defined, surface.

New CUERO. A difference you can see...a difference you can feel...a difference you'll appreciate.

Another example of Wilson-Art leadership at work ...for you.



To see the complete selection of CUERO finish chips, call the Wilson-Art Architectural Design Representative nearest you:

Atlanta: 404-373-2223. Chicago: 312-437-1500, 312-625-7590.
Los Angeles: 213-723-8961. Miami: 305-822-5140.
New Jersey: 609-662-4747, 215-923-1314.
New York: 914-268-6892, 212-933-1035.
San Francisco: 415-782-6055. Seattle: 206-228-1300.
Temple, Texas: 817-778-2711.

For more information, consult Sweet's Catalog, or Spec's Data Sheet, Category 6.

When the chips are down, you can depend on

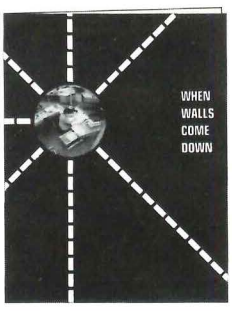
Wilson Art®
PLASTIC LAMINATES

RALPH WILSON PLASTICS COMPANY . . . TEMPLE, TEXAS
ARCHITECTURAL PRODUCTS DIVISION DART INDUSTRIES INC

When it comes to communications and electrical wiring in a situation like this



Wiremold has the systems answer: Tele-Power™ Poles in a variety of styles, and compatible wiring distribution methods for every type of open office plan.



Wiring for office landscaping (or open office planning) — whatever you call it — is covered in "WHEN WALLS COME DOWN" brochure. Please write for it.

WIREMOLD®

THE WIREMOLD COMPANY
HARTFORD, CONNECTICUT 06110

On Readers' Service Card, Circle No. 386

(Continued from page 156)

specifically designed to change a slum." The same kind of statement was made by the President's Commission on Civil Disorders, and even more recently, by the President's Study Group in their unpublished report (1970). This report calls for more urban renewal to help halt "the balkanization and polarization of American society" and goes on to say that there is "no greater danger to the future of our democracy than the possibility that the cities as we have known them will be destroyed as the well-to-do and the white concentrate more and more in the suburbs, with the central cities converted into reservations for the black and the poor. To help exorcise the spectre of increasing apartheid," etc. and etc. The credibility gap begins to look like the Grand Canyon.

Solutions? Supreme Court Justice William O. Douglas recently wrote a little book called *Points of Rebellion* in which he said, "We must realize that today's establishment is the new George III. Whether it will continue to adhere to his tactics, we do not know. If it does, the redress, honored in tradition, is also revolution."

Solutions? Professor Jay W. Forrester's *Urban Dynamics* does not say he has any; his book is "preliminary, it suggests a method of attack, it is not presented as a set of final answers to guide urban policy making." What does he propose? Nothing less than to examine the life cycle of an urban area using the methods of 'industrial dynamics'[1] that have been developed at MIT since 1956.

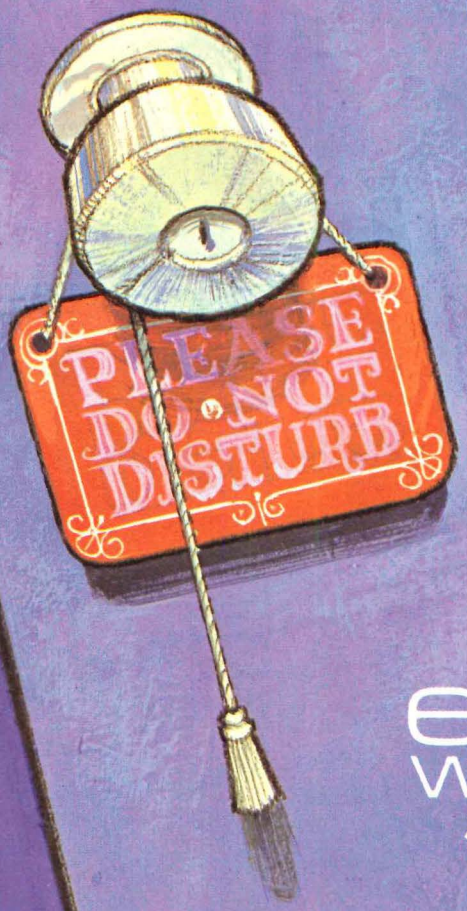
For those involved in systems analysis this is, I'm sure, an invaluable document, since it details a step-by-step analysis using a computer based methodology. For those involved in the city *as people*, what he comes up with is horrifying and recommends Justice Douglas' conclusion.

Forrester, like all systems men, is opposed to intuition and common sense. He finds the city a complex system and, therefore, "counter intuitive" since it is a "high-order multiple-loop, nonlinear feedback" structure. Obviously, it follows that philosophical, statesmanlike, or humanitarian decisions are invalid in relation to such systems. Instead,

[1] *"The study of urban dynamics was undertaken primarily because of discoveries made in modeling the growth process of corporations."*

(Continued on page 168)

THE QUIET SUPER-CORE DOOR



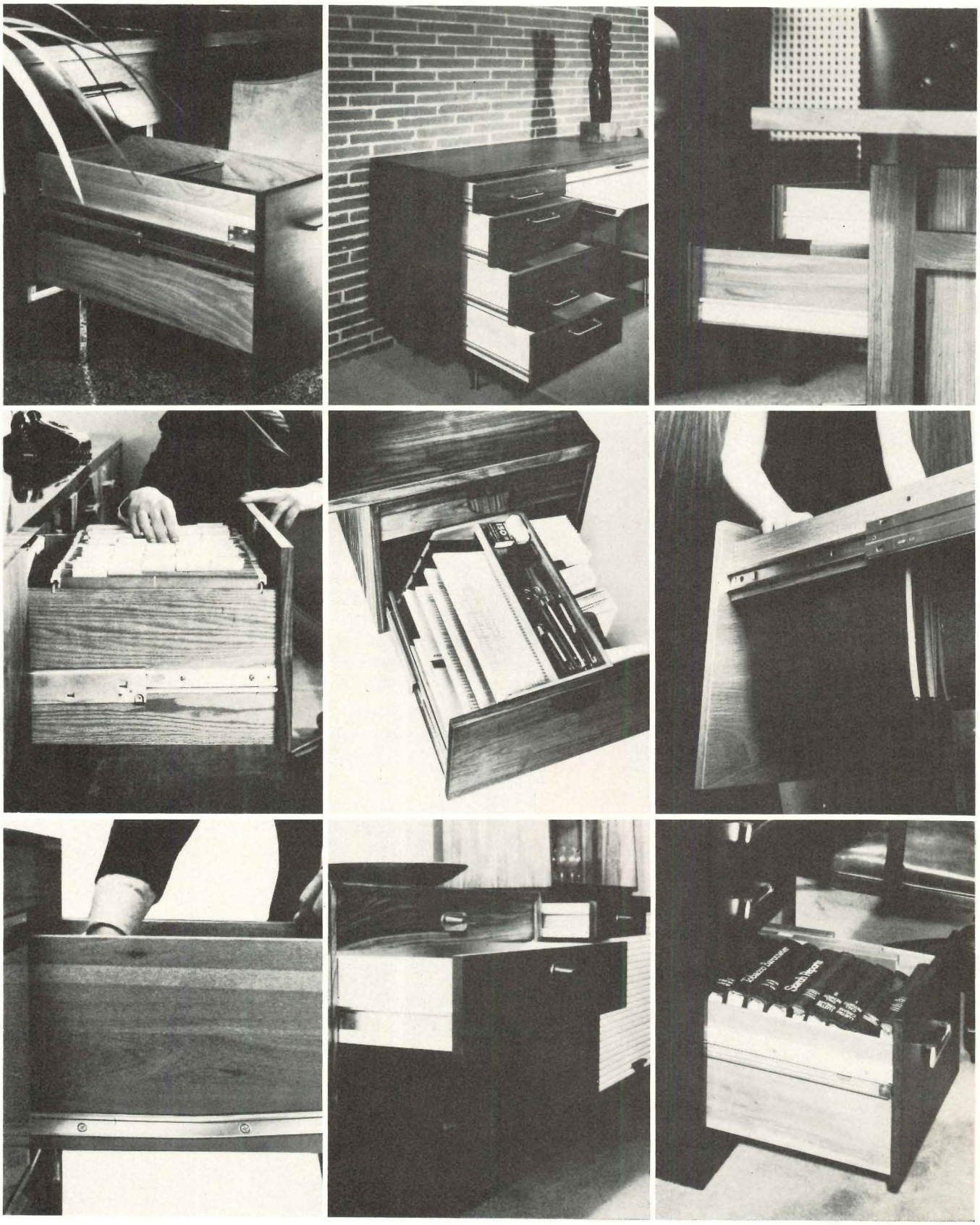
Privacy is a closely held treasure in high density environments. But even with a brusque sign on the door, privacy is lost if irritating noise intrudes. Loud television, heavy steps, shouts, the whirr of machinery, they all can sap the spirits in apartments, hotels, motels, hospitals, nursing homes and offices. Progressive architects and builders take pains to sound-deaden the walls and floors, but what about that significant sound path, the doorway? More and more, those openings are being closed by Amweld's Quiet Super-Core Door. It brings to the job a Sound Transmission Class rating of 33 decibels for the full door/frame assembly under operating conditions with no fancy, annoying baffles. The effect is lasting, because the super-Core never ages. Smooth or leather grain texture gives it the charm to complement the smartest of decors. Specify Amweld Super-Core and you'll *hear the last of it.* For full details, check the Yellow Pages under "Doors-Metal" for Amweld's distributors, or write directly.

everywhere w/AMWELD

AMWELD® METAL DOORS AND FRAMES

392 PLANT STREET, NILES, OHIO 44446 · A division of The American Welding & Manufacturing Company, Warren, Ohio

On Readers' Service Card, Circle No. 427

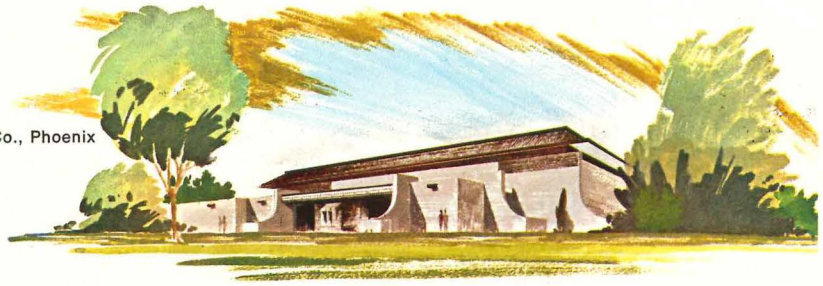


USE GRANT SLIDES FOR MORE PULL WITH MORE CLIENTS.

GRANT®
WE KEEP THINGS MOVING

GRANT PULLEY & HARDWARE CO., a division of Instrument Systems Corp. 49 High Street, West Nyack, N.Y. 10994 / 944 Long Beach Avenue, Los Angeles, Cal. 90021

Phoenix College Gymnasium — Phoenix, Arizona
Owner: Maricopa County Junior College District
Architect: Haver, Nunn & Jensen, Phoenix
Engineer: Foltz, Hamlyn & Adam, Phoenix
Prestressed Concrete Fabricator: Arizona Sand & Rock Co., Phoenix
Contractor: Redden Construction Company, Phoenix
Prestressed Strand: CF&I Lok-Stress





considered Lok-Stress® prestressed strand?

Liberty Building — Hudson Valley Community College, Troy, New York
Owner: County of Renssalaer, N. Y.
Architect/Engineer: Cadman & Droste, Troy, N. Y.
Prestressed Concrete Fabricator: Hudson River Concrete Products Corporation, Ravena, N. Y.
Contractor: Rosch Brothers, Inc., Albany, N. Y.
Prestressed Strand: CF&I Lok-Stress



Women's Building — Tennessee State Fairgrounds, Nashville, Tennessee
Owner: Tennessee State Fair
Architect/Engineer: Reese, Jackson & Collier, Nashville
Prestressed Concrete Fabricator: Breeko Industries, Nashville
Contractor: Kennon Construction Company, Nashville
Prestressed Strand: CF&I Lok-Stress

Lok-Stress prestressed strand is a new cost-saving engineering tool . . . an improved 270 Grade (ASTM A 416-68) Strand. Minimum yield strength is 90% of ultimate strength. Develops lower stress losses due to relaxation of strand.

Cost is lower because fewer strands are required.

Advantages include positive control of camber, predictable performance of prestressed concrete members, increased load capacity, increased span, increased ultimate capacity.

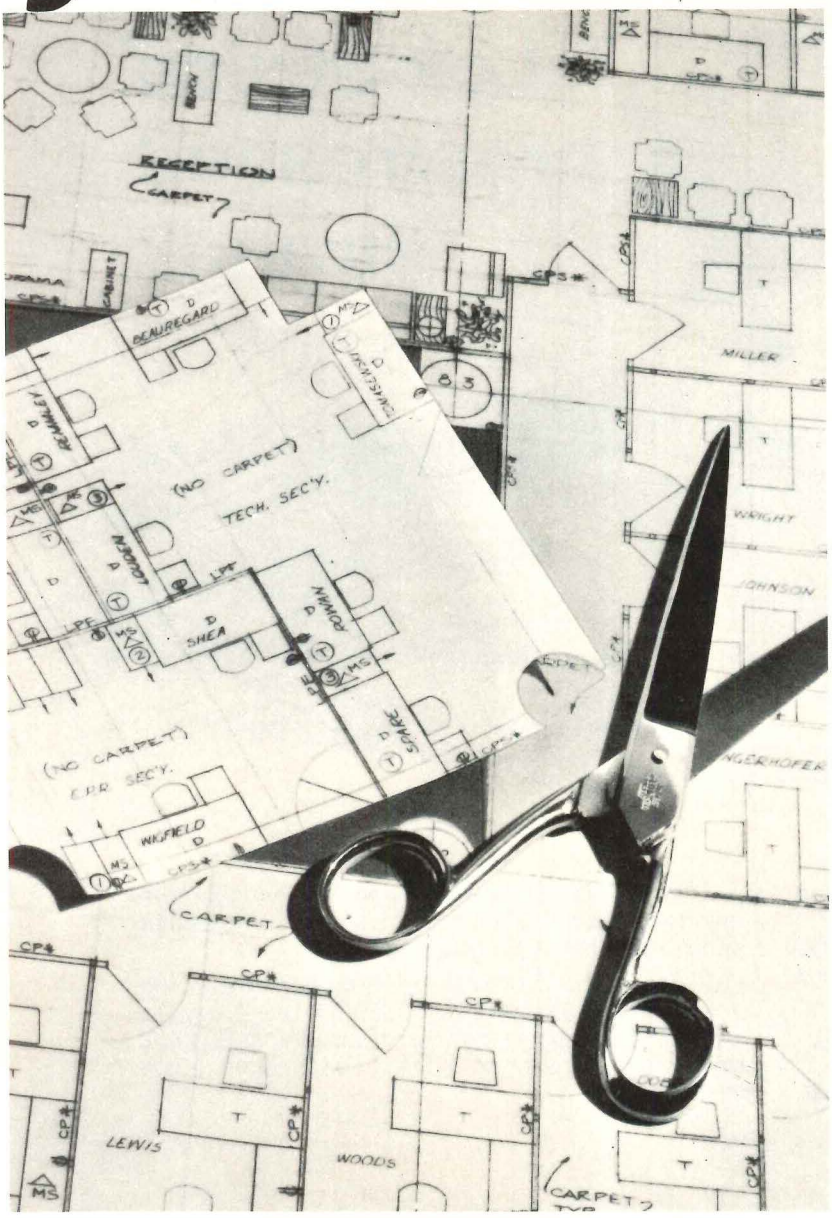
Call or write for additional information. We're the nation's largest manufacturer of prestressing strand. Our engineering staff will supply applicable design data or arrange a direct consultation, if you wish.

CF&I STEEL

CF&I Steel Corporation, Denver, Colorado.

Sales Offices Nationwide.

Cut yourself in.



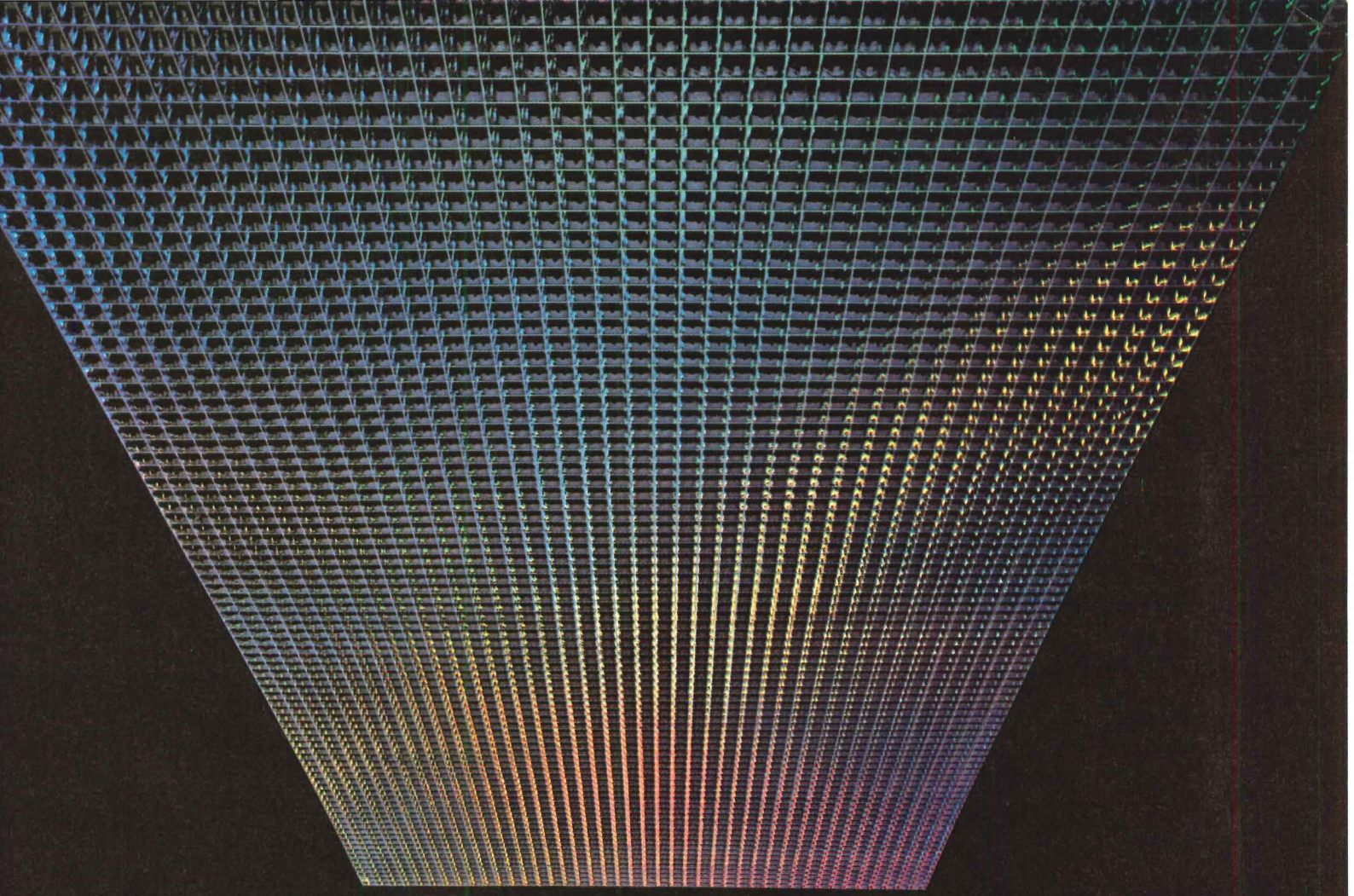
"Scissors draft" your way to increased production with KODAGRAPH Films and Papers.

Why retrace an entire drawing needing only revision? Instead, copy your original photographically on KODAGRAPH Film or Paper. Cut out the unchanged portions (often much of your drawing), mount them on a new drawing form, have a second original made on KODAGRAPH Film, and make your revisions on that.

For more on "scissors drafting" and other time-saving techniques, contact your Kodak Technical Sales Representative, or write Eastman Kodak Company, Business Systems Markets Division, Dept. DP-721, Rochester, N.Y. 14650

DRAWING REPRODUCTION SYSTEMS BY KODAK

Kodak



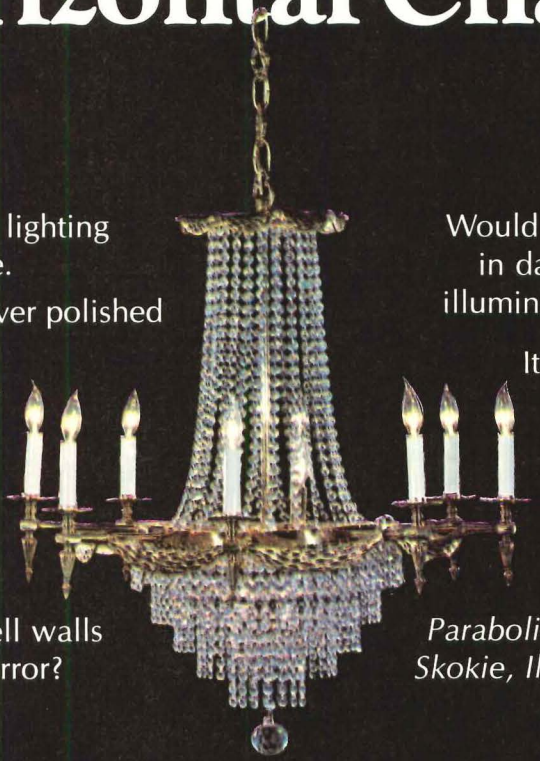
Presenting The Horizontal Chandelier.

Looks suspiciously like a lighting louver, you say? Can't be.

Who ever heard of a louver polished like Sunday silverware?

Since when will a louver permit you to raise foot candle levels without increasing glare?

What louver is so precisely molded that each of its parabola-shaped cell walls is an optically perfect mirror?



Would a louver look as beautiful in daylight as it does when it's illuminated?

It's a horizontal chandelier, that's what it is. Available with either silver or gold metalized finish, it's injection molded in a single 2′ x 4′ piece. Send for a sample: *Parabolic 2020, 7700 Austin Ave., Skokie, Illinois 60076*



This is it in cross section.

The Parabolic 2020
by American Louver Company

On Readers' Service Card, Circle No. 363

(Continued from page 162)

we must depend on Rand and Company. The city is an economic machine — there are employees, bank balances, the finished and in-process inventory; the physical machinery is the basic computerizable material. Although psychological attitudes, customs, tradition, and social factors are mentioned, they are dropped out when the equations are made since they are noncomputerizable.

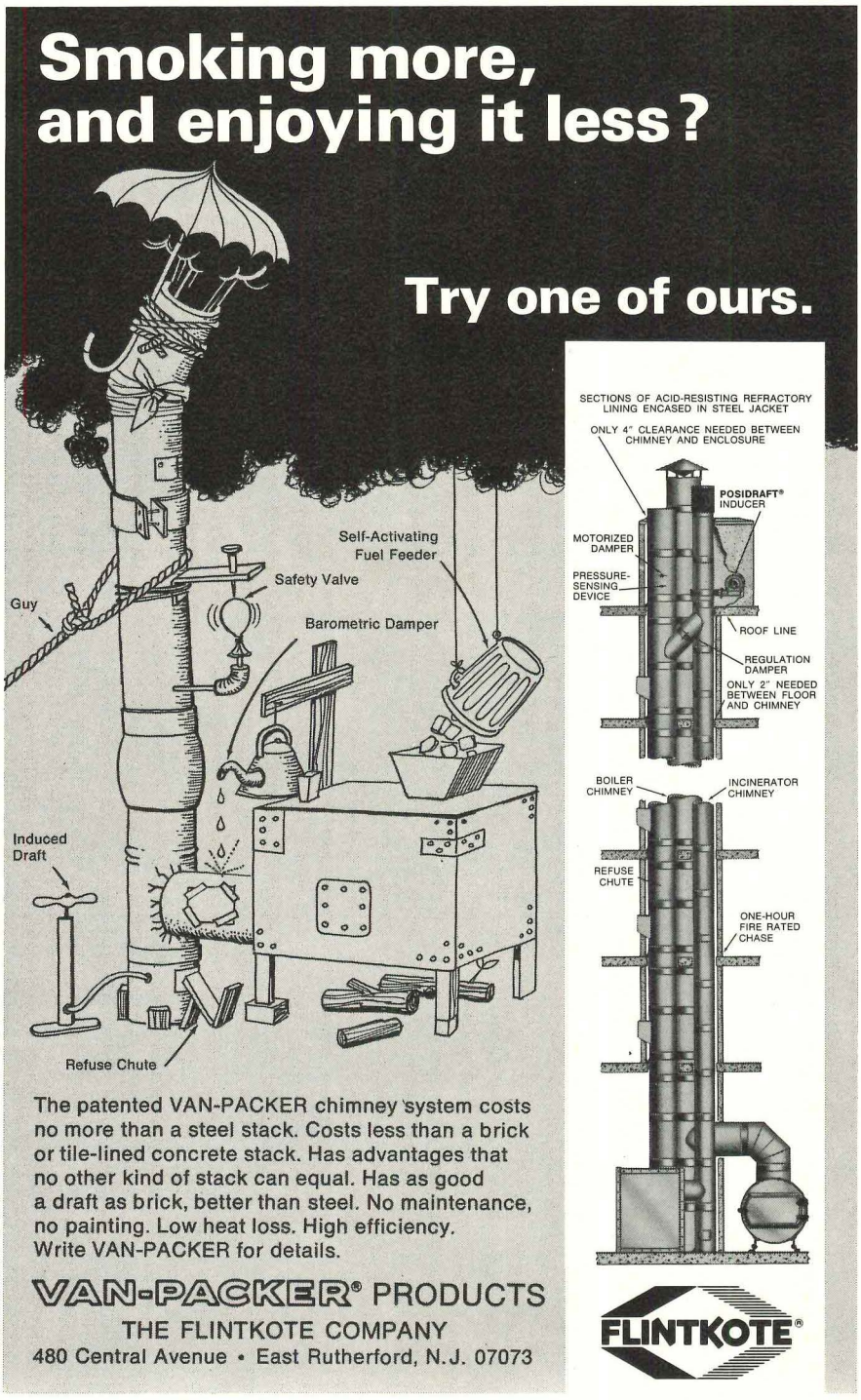
Briefly, he finds that if you get rid of slums by demolishing buildings, do not build publicly assisted housing, and do not have a welfare program, the poor will leave the city and the city will again become a going concern. Professor Forrester! I believe that a colleague of yours at MIT, Norbert Weiner, once wrote (in *The Human Use of Human Beings*) that the value feedback between machines ought to pass through the human being. I interpret this to mean that the value of a system depends on its acceptance by the human nervous system so that the test of a system is found, not in technology, but in anthropology.

Perhaps it is a generation gap, perhaps a difference between the Englishman and the American, but there is a difference in feeling between J. Brian McLoughlin's *Urban & Regional Planning: A Systems Approach* and Forrester's *Urban Dynamics*. For example, in an introductory chapter on "man in his ecological setting," McLoughlin affirms that man is not personnel to be used by a corporation but part of an ecosystem. He is "concerned with the aspect of understanding the complex systems of man's activities in the whole context of the planet's ecological systems," and further "The challenge is the need to *manage* the resources of the whole human environment for man to create for himself a better relationship within nature if he is not to have an irretrievably adverse impact on the environment."

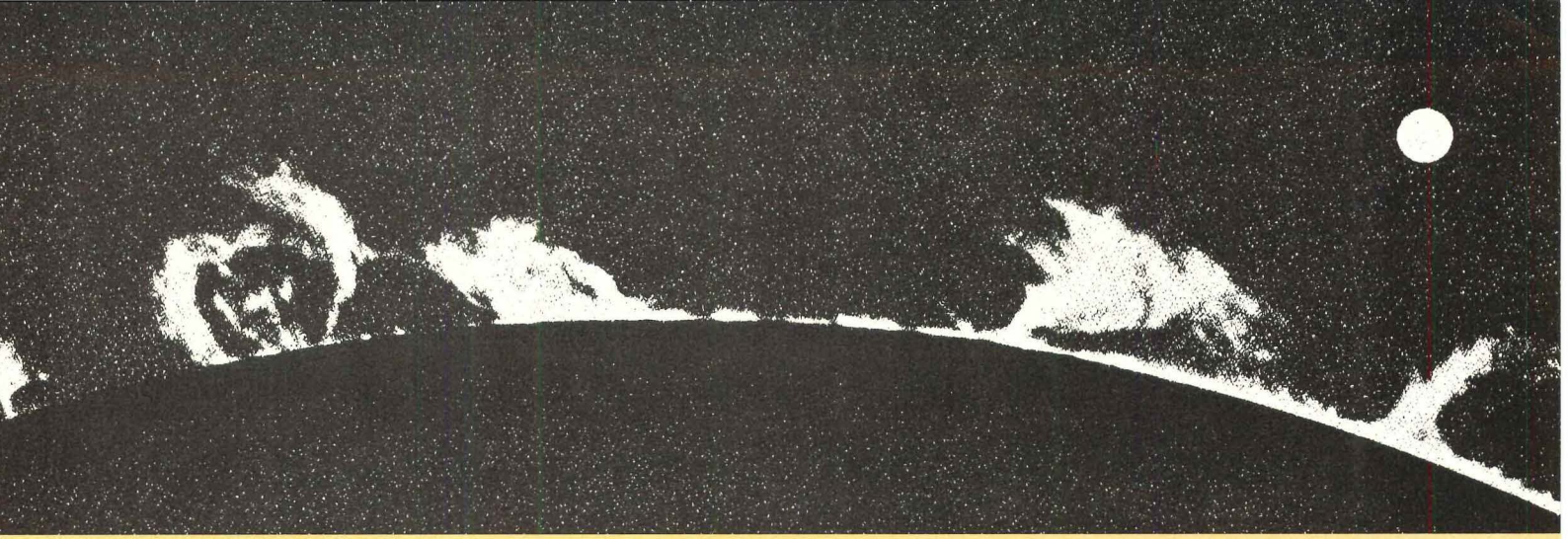
Aside from its display of overconfidence in systems analysis, this is a useful book; the source material and references are excellent and the discussions of systems approaches will be heard in many planning schools. I can only hope that, when this happens, McLoughlin's epilogue will be remembered: "Finally the most important implication of a systems view of planning may be to induce a greater degree of humility in planners. As we probe deeper, we become increasingly aware of the labyrinthine nature of human motivations, choices, and actions." This insight seems to have occurred to a variety of people, including Homer, Shakespeare, and Freud.

A matter that McLoughlin should ponder deals with man in relation to the controllable environment. He says correctly that competitive behavior has been an essential feature of the ecosystem since it is the way nature has kept the balance. But what happens when a species is so dominant that there is no competition except with its own kind? "Great fleas have little fleas upon their backs to bite'em/Little fleas have lesser fleas and so infinitum" was and still is part of man's way. But what happens when the big flea's bite has become so lethal as to destroy not only the little fleas but all fleadom? In such a case, cooperation, not competition, between us fleas must be the first step toward survival as it must be the first step toward planning on a planet threatened with doom. None of the books thus far reviewed so much as mentions the need.

(Continued on page 184)



On Readers' Service Card, Circle No. 334



Outside heat raises inside cooling costs. Zonolite can help reduce the problem at its foundation.

Look into Grace-Zonolite® Masonry Fill Insulation. It's incredible stuff. To put it another way, it's a lightweight, free-flowing, water-repellent, vermin-proof, rot-proof, fire-proof, sound-deadening, inorganic, granular vermiculite!

Year after year, it can deliver savings in cooling and heating dollars that far exceed the initial cost of the fill.

Other virtues? Yep.

Zonolite® Masonry Fill Insulation reduces sound transmission 20% to 31%. It increases a 2-hour fire rating to 4. It pours in at the rate of 28 square feet per minute. It's acceptable in FHA-financed housing.

Want all the details, test data, specifications, and such?

Say the word!

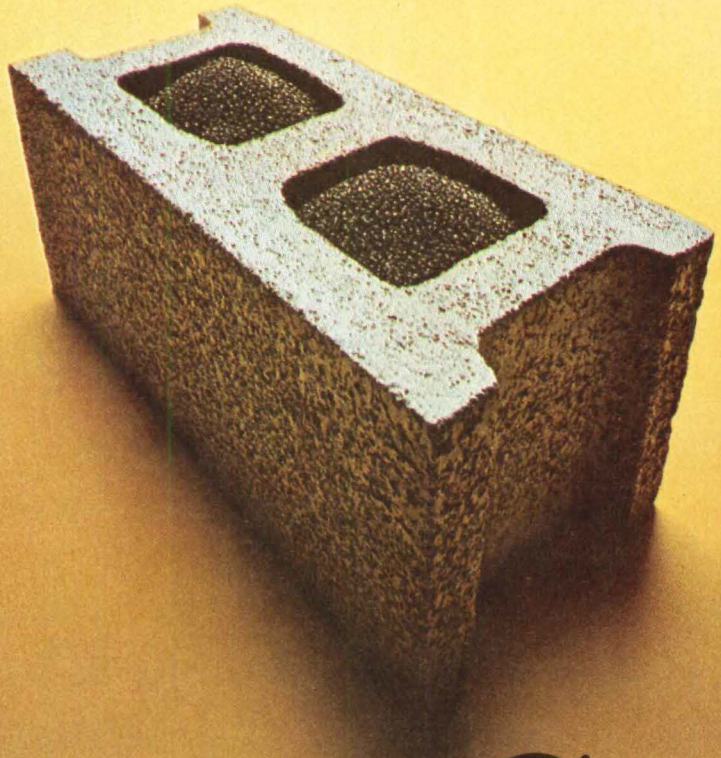
"U" VALUES—concrete block walls

Wall Thickness, Inches	Type of Block	Block Only	
		Uninsulated	Insulated
6	Lightweight	.40	.26
8	Lightweight	.33	.17
	Heavyweight	.53	.36
12	Lightweight	.33	.12
	Heavyweight	.46	.25

ZONOLITE

W. R. GRACE & CO.
62 Whittemore Avenue
Cambridge, Mass. 02140

GRACE



Just say Grace.

On Readers' Service Card, Circle No. 421


One step beyond



The Vista III Postop® Series by Holophane is designed for the day, engineered for the night.

Imagine the kind of outdoor lighting you've *wished* you could specify. Trim. Clean-lined. Handsomely styled. Designed to be *part* of architecture.

Imagine the kind of performance you'd expect from such units, performance that puts plenty of comfortable light right where it works hardest.

Now imagine these qualities combined in a versatile family of outdoor luminaires. That's Vista III Postop Series by Holophane.

There are three basic and beautiful Vista III luminaires. Ellipse. Square. Tapered. Use them singly or in multiples. Pole-mounted or wall-mounted. On arms or poles in aluminum, black, or custom colors.

Each luminaire has a carefully engineered prismatic refractor. This precision refractor spreads the light for maximum comfort...directs the light for maximum efficiency. In fact, Vista III Postop luminaires deliver *more light over a greater area for fewer dollars than any other architecturally styled outdoor luminaire.*

Our new full-color booklet contains all the facts on this advanced line of outdoor lighting units. Write for it today. Dept. 1, Holophane Company, 1120 Avenue of the Americas, New York, N.Y. 10036.

VISTA III POSTOP® by

HOLOPHANE

...one step beyond.

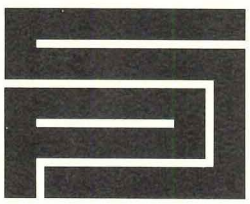
Security devices for vandal-proof wiring?

only one company has a real exclusive on this.

You're right. P&S

Get *all* the facts right now. Write, or ask for, descriptive literature on our new P&S 4600—the vandal-proof weatherproof security enclosure with locking cover . . . and other exclusive moisture-proof, vandal-proof, weatherproof security devices, Exclusively yours from P&S . . . The *specialists* in wiring devices.

For information write Dept. PA-470



PASS & SEYMOUR, INC. | SYRACUSE, N.Y. | 13209

CHICAGO | LOS·ANGELES | SAN FRANCISCO | In Canada: RENFREW ELECTRIC CO., LTD.

On Readers' Service Card, Circle No. 321



Universal's carpet of Vectra® fiber gets underfoot at a football game.

Universal's "St. Mark's" tufted cut pile carpet took four quarters of rough-and-tumble football . . . bonded to the shoes of a defensive end! We set up the torture test to prove an important point. That whatever scuff and stain-prone place you want to carpet . . . be it classroom, theater or hotel lobby . . . St. Mark's is equal to the task. And then some. Witness how it came up smiling after the final gun! Couple this kind of stain and wear-resistance with Vectra fiber's extraordinary resistance to fading, and you have a carpet that can stand any test anywhere. Universal's St. Mark's tufted carpet, made with spun yarns of 100% Vectra fiber. For wherever you want to put it.

Pile of 100% solution dyed Vectra olefin fiber
5/64" Gauge (12.8)
Pile Wt.—35 oz. per sq. yd.
Pile Ht.—5/16"
Primary backing—100% non-woven polypropylene.

Secondary backings: (wt. per sq. yard)
1. 40 oz. high density rubber
2. 9 oz. jute

For samples and information on Universal St. Mark's write:
Universal Carpets, Inc.
Department A, Ellijay, Georgia 30540

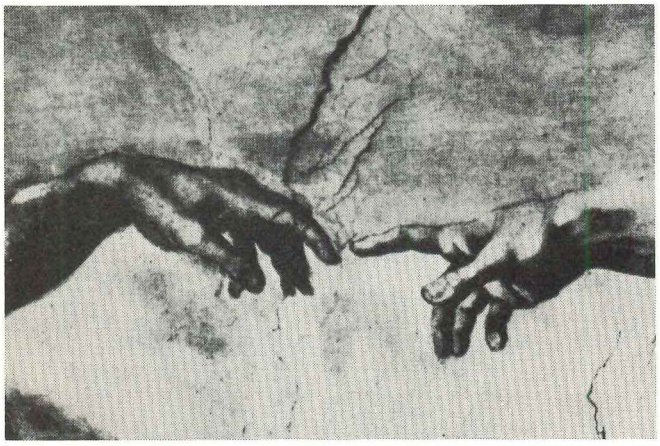
NAME_____
COMPANY_____
ADDRESS_____
CITY_____
STATE_____ ZIP_____

ENJAY

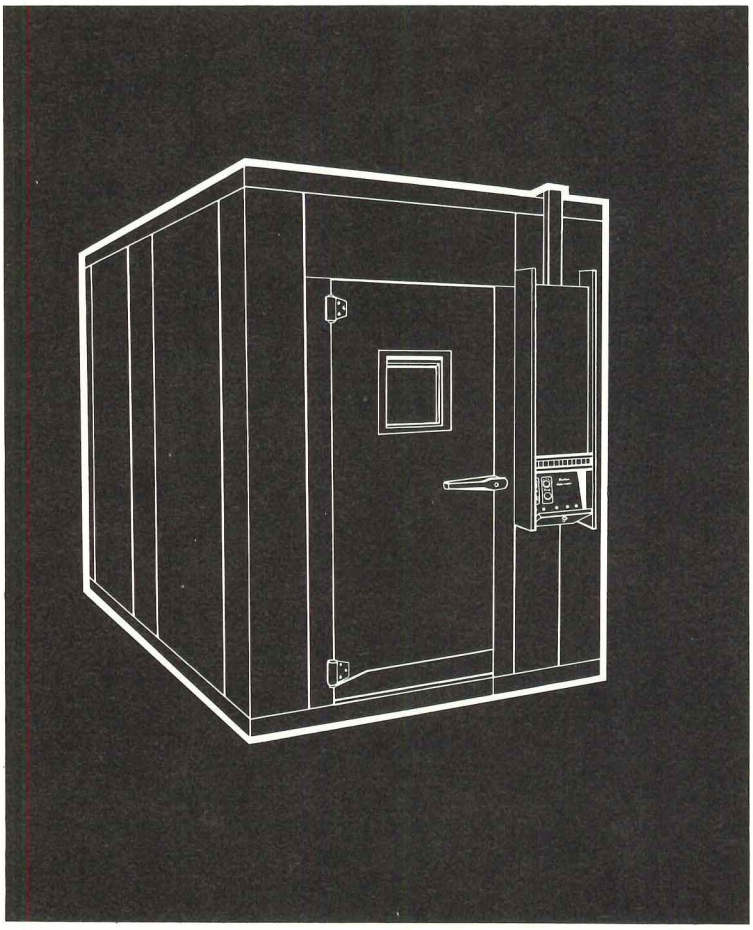
Vectra® olefin fiber is manufactured by Enjay Fibers and Laminates Company, Odenton, Maryland, a division of Enjay Chemical Company. Odenton: (301) WO 9-9000. New York: 60 W. 49th Street (212) 974-3000. Atlanta: 225 Peachtree Street, N.E. (404) 688-4250. Enjay makes fiber not carpets.

On Readers' Service Card, Circle No. 422

Creation



At Forma Scientific we create environmental chambers, not manufacture them. We feel that since our rooms will be used to create a special environment, our customers deserve a product that can handle any life scientist research project. So with every room, we're searching for a better way to do certain things.



For a few standard instances:
We've made our FORMA-LAB Rooms solid state. That way it's much easier to control air flow and environment to ±0.15° C. We've built our rooms well with metal construction, a 4" urethane insulation, and special locking joints. Results are no moisture bleeding, minimal temperature variations — in fact, better than ±0.3° C. We've also installed a silencer. Our modern new control center, without cycling relays or solenoids, is clickless.
One more thing we try to create for all of our customers; that's the best service in the business. Write for our free Early Planning Guide: Forma Scientific, Inc., Box 649, Marietta, Ohio 45750.

Forma Scientific

On Readers' Service Card, Circle No. 335

MIRAWAL

A BRIGHT NEW IDEA INSIDE AND OUT.

An unusual new way to inject all sorts of creativity—both inside and out. Mirawal porcelain-enamel-on-steel panels. They fit anywhere. Bright-hued. Won't crack or chip. Colorfast, heatproof and stain-resistant. Easy to clean.



Versatile Mirawal insulated panels are ideal for modern school use—one panel can serve as the complete wall with porcelain enamel on both the outside surface and the floor-to-ceiling chalkboard inside.

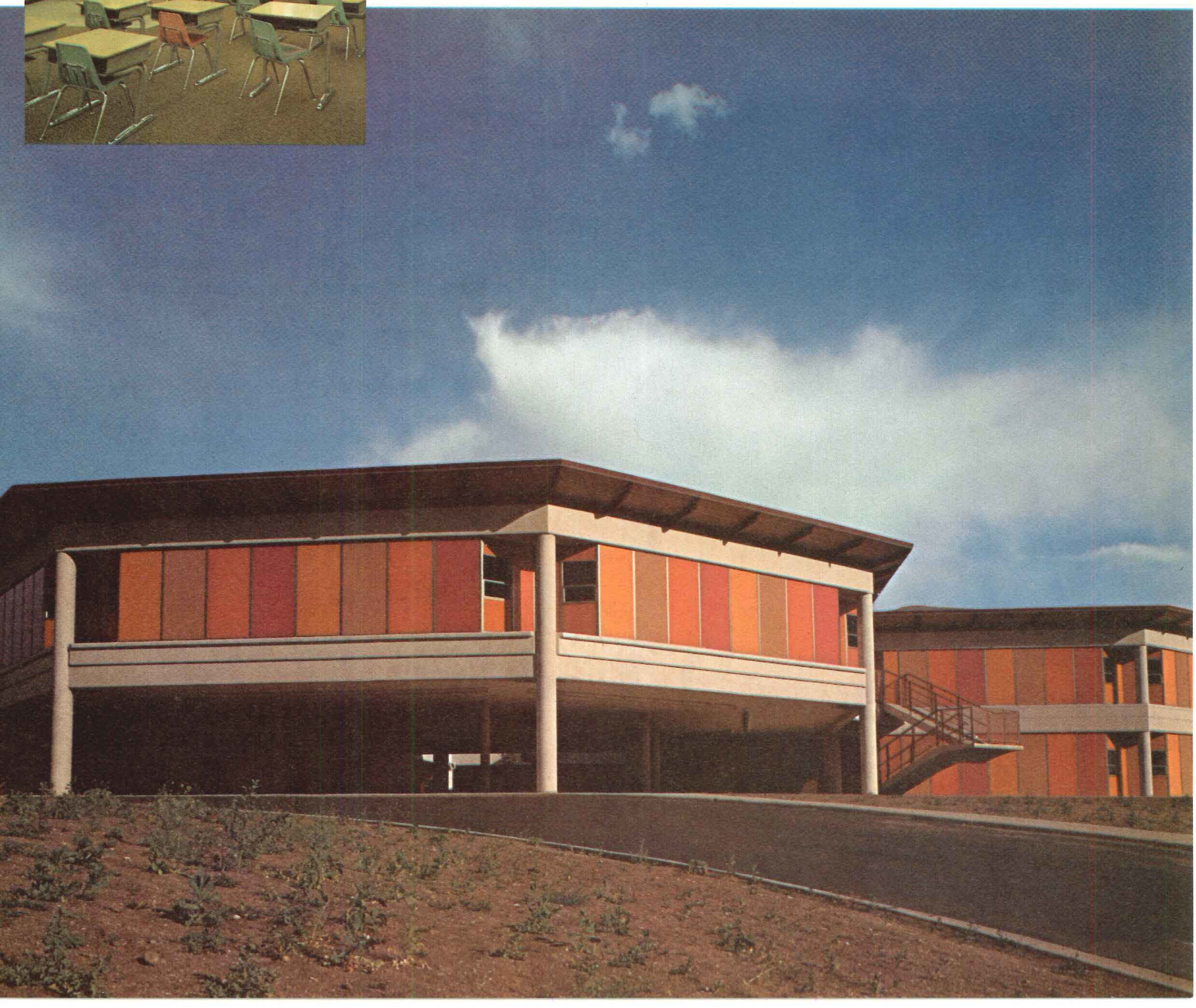
Choose from a wide array of contemporary colors. Surface finishes include full-matte, semi-matte, or gloss porcelain. For more details, see Sweet's Architectural File, Section 20b, or write Kaiser Aluminum Mirawal Products, P.O. Box 38, Port Carbon, PA 17965.

MIRAWAL PRODUCTS

KAISER ALUMINUM

On Readers' Service Card, Circle No. 349

MIRAWAL used as both exterior wall surface and unique interior floor-to-ceiling chalkboards in the Leo J. Muir Elementary School, Bountiful, Utah. Architect: Harold Beecher Associates.



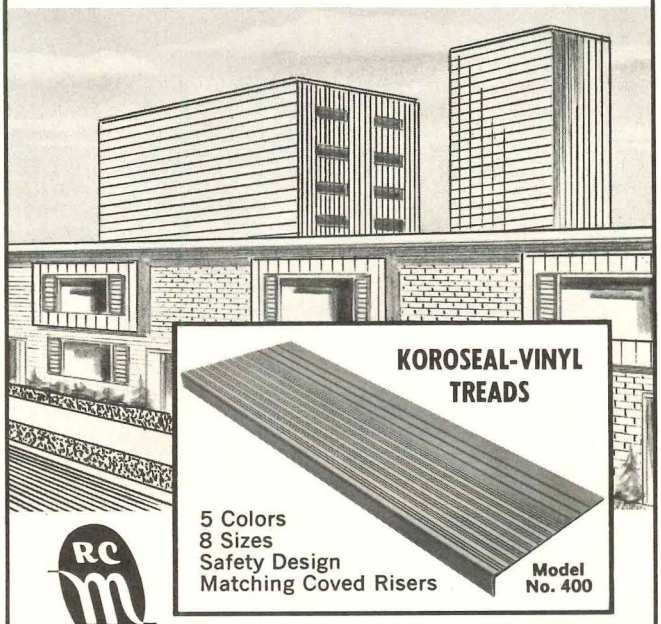
FH

Arne Jacobsen had an idea for Fritz Hansen. Design a basic chair for comfort and function. With or without arms. On steel chrome-plated legs, with or without swivel. And make them stackable! And then offer a combination of any and all–in oak, teak or rosewood, or upholstered in fabric, leather or vinyl.
For more information please write to Fritz Hansen, Inc., 979 Third Ave., New York 10022.



On Readers' Service Card, Circle No. 406

MUSSON TREADS FOR APARTMENTS



For Economy, Safety and Beauty

Architects favor Musson KOROSEAL-VINYL treads for many multi-family complexes; also factories, shops, stores, theaters, etc. These treads are easily cut to fit, resist oil and grease, are easy to clean, low cost, non-porous and durable.

Write For Catalog and Prices

THE R. C. MUSSON RUBBER CO.

1320 Archwood Ave. Akron, Ohio 44306

On Readers' Service Card, Circle No. 370

FINESTONE

WHAT'S IN A NAME? Check it yourself!

F inest in architectural finishes

I nfinite color and texture variation

N atural or man-made aggregate in any size

E asily applied to almost any substrate

S trengths far beyond ordinary cement

T ransforms surfaces from ordinary to beautiful

O pens new possibilities for the artist-designer

N ovel effects are achieved by varying colors and textures

E conomical application: by trowel or gun, on-the-job or in-the-shop

FINESTONE Corporation

11846 EAST McNICHOLS · DETROIT, MICHIGAN 48205

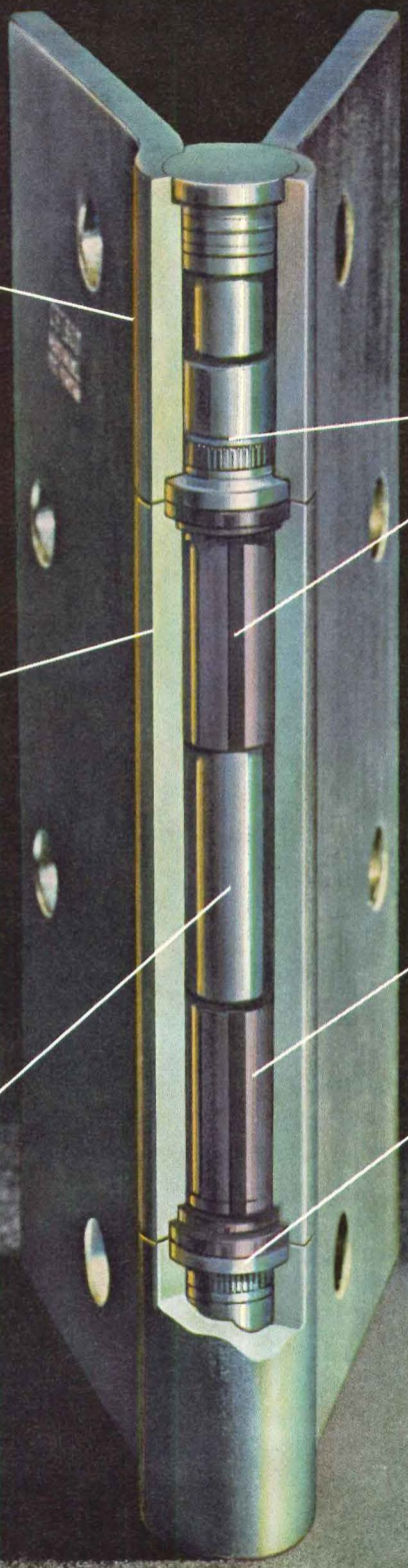
In Canada: Finestone (Canada) Ltd., 3625 Weston Rd. — Suite #10, Weston, Ont.

On Readers' Service Card, Circle No. 367

On Readers' Service Card, Circle No. 385

An immortal hinge?

(Stanley comes close with LifeSpan™)



A totally new concept in hinge design and bearing construction so extraordinary the LifeSpan hinge* is guaranteed for the life of the building.

No ball bearings! New LifeStan™ Bearing consists of a stainless steel bearing part, precision flat and super finished — against Stanite, a new self-lubricating bearing material that requires no oil, no grease, no maintenance.

Slimmest barrel in the industry, three knuckles, with only two horizontal lines and flush tips and pins — the handsomest hinge made!

Lateral load is taken between stainless steel pin and surface of Stanite bore.

Vertical load is taken between stainless steel and Stanite thrust surfaces.

Stainless steel rust-resistant pin — through-hardened and precision polished.

Write for LifeSpan brochure H-463 to Stanley Hardware, Division of The Stanley Works, New Britain, Connecticut 06050

STANLEY®

helps you do things right

*Patent Pending



New Facad is so sculptured, it's almost sculpture.

There's a new way to incorporate sculpture and textural relief in building design. It can be done with Facad®.

This sculptured facing system of easy-to-install thin, molded, reinforced cement panels can be used as a total wall element; as spandrel panels, fascias, balcony panels or soffits.

Sturdy, but lightweight (2 pounds/square foot), Facad is easy to handle. It comes in sizes up to 4′ x 10′. No special skills or extra structures are required. Installation is within the competence of carpenters or glazers.

Facad is durable. Because it is all mineral, it is completely incombustible.

Facad comes in a series of standard panel surfaces, one of which is shown above. It can also be custom molded to afford architectural designers a broad choice of texture, color and pattern.

For complete information, call the Architects Service Representative at your nearest U.S. Plywood office or write:

U.S. Plywood

A Division of U.S. Plywood-Champion Papers Inc.
777 Third Avenue, New York, N.Y. 10017

On Readers' Service Card, Circle No. 361



On Readers' Service Card, Circle No. 414

Builders know that Crestline windows seem to be highly moisture-repellent

Which is a good thing to be aware of when you're in the business of installing or specifying windows that have to go into the outside wall of anything.

You see, we totally submerge our sash and frame for quite a while in a special, brutally-effective preservative that kind of armor-plates our luxuriously-clear Ponderosa pine against moisture penetration and leaks and rot and even termites. Field tested for twenty years . . . and still protecting.

Of course there are other extras lavished on Crestline windows, like the finest hardware, beaded and bedded glazing, total weatherstripping, extra strong sash, and more. All the result of our kind of extra engineering finesse that adds extra value across a line wide enough to fit every architectural need.

Check with your Crestline dealer-distributor, or write us in Wausau, for the rest of our leadership story on quality/price/service.

We're making quite a splash with it.



CRESTLINE®

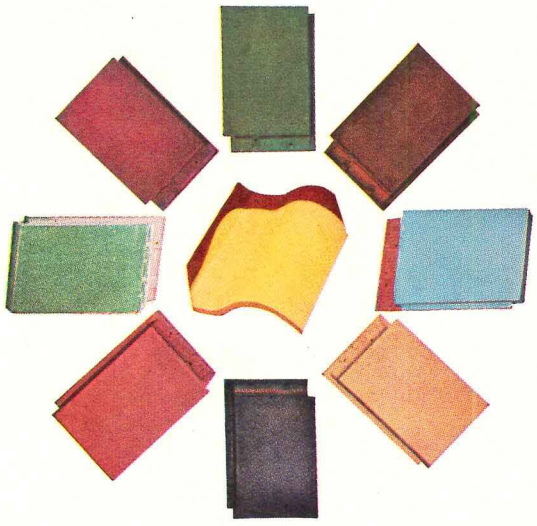
The wood windows that cut out the callbacks
Home office, Wausau, Wis. Plants at Wausau, Ladoga, Indiana, Corry, Penna., and Petersburg, Va.

see our catalog in Sweet's (S)



Imperial House, Dallas, Texas
Architect: George L. Dahl, Inc.

"Imperial House" of Dallas... Outstanding Architectural Creation with Ludowici-Celadon Roofing Tile



WIDE SELECTION OF OTHER PATTERNS, TEXTURES & COLORS

For a roofing material that can express his every architectural fancy, the perceptive architect looks to Ludowici tile. Varied patterns, colors and surfaces offer an unlimited choice in hard-burned clay that cannot wear out, fade or discolor . . . and that requires minimum maintenance.

Architect George L. Dahl of Dallas selected Ludowici's Designer Tilestones in tones of blue, green and gray for this luxurious modern apartment building.

For additional information see Sweet's Catalog or write Dept. AR

LUDOWICI-CELADON COMPANY
75 East Wacker Drive • Chicago, Illinois 60601

Manufacturers of quarry tile, the nation's largest producer of roofing tile and NAILON Facing Brick.

On Readers' Service Card, Circle No. 405

Wade DWV System Carriers are the very best that man and machine can make.

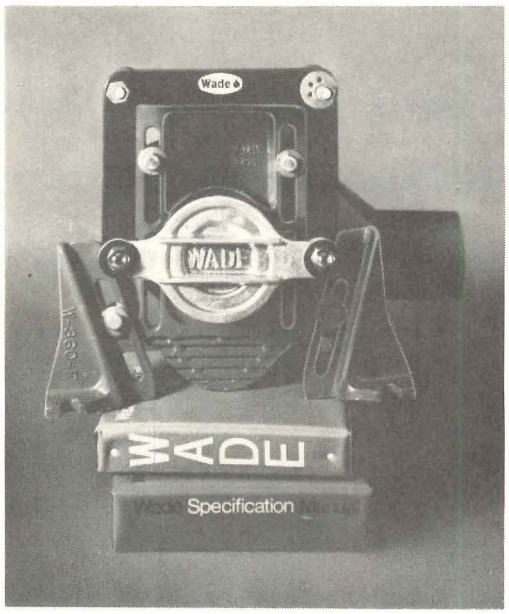
The industry bible for DWV systems is the Wade Specification Manual.

It tells you all about our Carriers. The specs, the types, everything you need to know in order to specify the Wade Carrier that's right for the system you're designing.

Our bible also gives you specification and product information on everything else we make. Everything from roof drains, to water hammer arrestors, to interceptors, cleanouts and floor drains.

All of these DWV system products are designed, engineered and manufactured to the highest quality standards by the Wade Division of the Tyler team. The team that makes everything you need for a total cast iron DWV system.

Things like cast iron soil pipe, No-Hub Couplings and TY-SEAL® Gaskets from our Soil Pipe Division and things like waterworks and municipal fittings from our Utilities Division.



Next time specify from the bible. To get your free, registered copy, simply write us on your letterhead.

If it goes into a cast iron DWV system, Tyler makes it.

WADE DIVISION
TYLER PIPE INDUSTRIES
P. O. BOX 1211 | TYLER, TEXAS 75701

Member, Plumbing and Drainage Institute

We swear to that on a stack of bibles.

Copyright Tyler Pipe Industries 1970

Quality: An open-and-shut case.



School lockers — you get out of them what you put into them.

Republic Steel lockers give you total quality. For dependable operation, good looks, the utmost in life expectancy.

Heavy-gage steel construction. Handles that are kick-proof. Rubber silencers riveted to the frame hooks, and 19 decorator colors to choose from.

Not that these are extras. They're standard equipment. They're what happens when sound construction and fine engineering come together. In single or double tier lockers with standard or full louvers. Two person, box type, you name it.

Case closed. Manufacturing Division, Republic Steel Corporation, Youngstown, Ohio 44505.

Steel

Republicsteel
Manufacturing Division

On Readers' Service Card, Circle No. 417

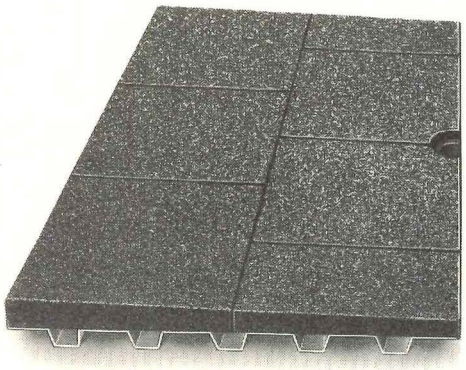


DON'T LET YOUR ROOF TURN INTO A POND.

SPECIFY TAPERED ®FOAMGLAS INSULATION

Tapered FOAMGLAS automatically slopes a flat deck for positive drainage. The roofer simply places factory-tapered FOAMGLAS and roofs over immediately. An added advantage: single-contractor responsibility.

FOAMGLAS is completely waterproof, strong and dimensionally stable, so it's an excellent base for built-up roofing. It's guaranteed. For further information, contact Pittsburgh Corning Corporation, Dept. PP-40, One Gateway Center, Pittsburgh, Pa. 15222.



PITTSBURGH PC® CORNING

On Readers' Service Card, Circle No. 397

(Continued from page 168)

The stance of each is to propose infallible remedies for incurable disease — not to seek out and extirpate the causes. So we have quackery.

With the best intentions imaginable, the *Planning & Design Workbook for Community Participation* is also quackery. It is intended "for people who want to take action to make a better life in their community and in their housing. . . . When you use the workbook, you will be able to state clearly the policies you want to support to improve . . . to make concrete and detailed proposals which describe the specific changes you believe are needed" and so, "you will be able to work more effectively with the many officials and professionals who are involved in carrying out any of the proposals for change." This is a 600 page hornbook, a correspondence school course for the layman in how to prepare a bureaucratic document. He is told how to select sites and calculate rents, as well as how to design sites and the dwellings on them. But the meat is to be found on a page headed, "If your chosen policies are not immediately possible under existing programs and regulations, what will you do?" Four policies are given with their results. Policy A, for example, is "reverse policy to make some immediate action possible, even if you must change important policies." The possible result? "Many people prefer a compromise solution . . . to a better scheme that exists only on paper." While the more radical policy is to "hold up all development and engage in political action until top priority policies can be put through." The result, the authors point out, is — "Hard to win with this all-or-nothing policy." All this is good and true, but what is not said is that under present and foreseeable conditions in our political climate and economy, superficial technical knowledge is not the need but a demand by our citizenry that national priorities be reordered in the light of a re-evaluation by each of us as to what we mean by the American standard-of-living.

The latter is rather pointedly presented in *Urban Dwelling Environments*, a comparative study of sixteen urban localities, eight in Boston and eight in four Latin American cities. The United States, as might be expected, comes off very well in-

(Continued on page 190)



Put a Bally Prefab Walk-In Cooler/Freezer in the kitchen. The name of the game is speed-feed for a hungry generation on wheels. They put it away—steaks, shakes, fish and fries—you name it. It all starts with dependable Bally prefab storage. Erect any size or shape quickly and easily from standard metal clad panels. Write for 32-page book and urethane sample.

There's an evolution in the kitchen

Bally®

Bally Case and Cooler, Inc., Bally, Pa. 19503
Dept. PA-4

® 1970, ALL RIGHTS RESERVED.

On Readers' Service Card, Circle No. 330



Fire Retardant Novoply is applauded by the toughest committee in the city.

Fire fighters are highly enthusiastic about Fire Retardant Novoply.® Which figures. It rates as a Class I (or Class A) material under the major building codes, having been listed and labeled by Underwriters' Laboratories, Inc., with a flame-spread rating of 25.

Fire Retardant Novoply is a true 3-ply particleboard developed expressly to meet building code requirements for fire-retardant materials. It can be used as core stock under wood veneers and plastic laminates, or as a paint grade panel any place you want a flat stable panel wit excellent fire retardance.

Contact your nearest U.S. Plywood branch. Ask th Architectural Service Representative about Fire Retar ant Novoply. Or write to U.S. Plywood, Dept. PA 10- 777 Third Ave., N.Y., N.Y. The more you specify, th happier you'll make the fire fighters in your area.

U.S. Plywood

A Division of U.S. Plywood-Champion Papers I

777 Third Avenue, New York, New York 10017

On Readers' Service Card, Circle No. 360



Dental Reception Area, Health Sciences Center,
Case-Western Reserve University, Cleveland, Ohio

ARCHITECTS: Barnes, Neiswander & Associates, Cleveland, Ohio
STRUCTURAL ENGINEERS: R. M. Gensert & Associates, Cleveland, Ohio

Distinctive design expressed in form and finish characterizes the new Health Science Center at Case-Western Reserve University in Cleveland. ChemComp cement concrete was used under the open walkways to help prevent drying shrinkage and the resultant leaks that would be difficult and costly to repair. This feature of ChemComp cement also minimized the possibility of slab movement away from steel columns tied into the floors, thereby maintaining shear strength design values.

Resistance to drying shrinkage, lower permeability, dimensional stability, increased bond strength to reinforcing, fewer control joints, increased live load capacity, less sealing and caulking . . . all add up to greater freedom for the designer, better value for the customer.

Specify, profit by using

ChemComp® Cement

the shrinkage-compensating cement

Kaiser Cement & Gypsum Corp.
Kaiser Center, 300 Lakeside Drive
Oakland, California 94604

Medusa Portland Cement Co.
P. O. Box 5668
Cleveland, Ohio 44101

Penn-Dixie Cement Corp.
1345 Avenue of the Americas
New York, New York 10019

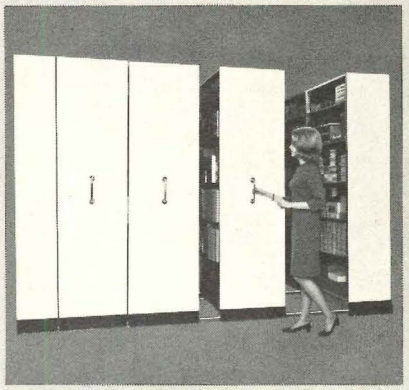
Southwestern Portland Cement Company
1034 Wilshire Boulevard
Los Angeles, California 90017

Texas Industries, Inc.
P. O. Box 400
Arlington, Texas 76010

For further information contact:
Chemically Prestressed Concrete Corp., 14656 Oxnard Street, Van Nuys, California 91401
or the sales office nearest you.

On Readers' Service Card, Circle No. 416

A logical storage system for your clients seemingly illogical space problem. One of the problems building designers often face is that of providing adequate storage space. Often, using ordinary storage methods, space is pirated from areas needed for other functions or storage space is reduced to an inadequate size. Result: a compromise with which neither architect or client is wholly pleased.



The answer? Design in Lundia FULLSPACE, the modern, practical storage systems that provide at least 40% and up to 60% savings in storage space!

Lundia FULLSPACE movable wood units enable you to convert what would be normally inefficient storage areas into neat, compact, well-organized storage and filing systems that make anything stored extremely accessible . . . without hidden or hard-to-reach corners. For new construction, expansion or remodeling, Lundia FULLSPACE is the most logical storage system available —anywhere! Get complete details, suggested plans, layouts and estimates now. Mail the coupon today!

FULLSPACE Lundia® PREFABRICATED ADJUSTABLE SHELVING

LOGICAL STORAGE SYSTEMS FOR SEEMINGLY ILLOGICAL SPACE PROBLEMS



LUNDIA, MYERS INDUSTRIES, INC.
Dept. No. 7058
P. O. Box 309 • Decatur, Illinois 62525

Lundia SHELVING

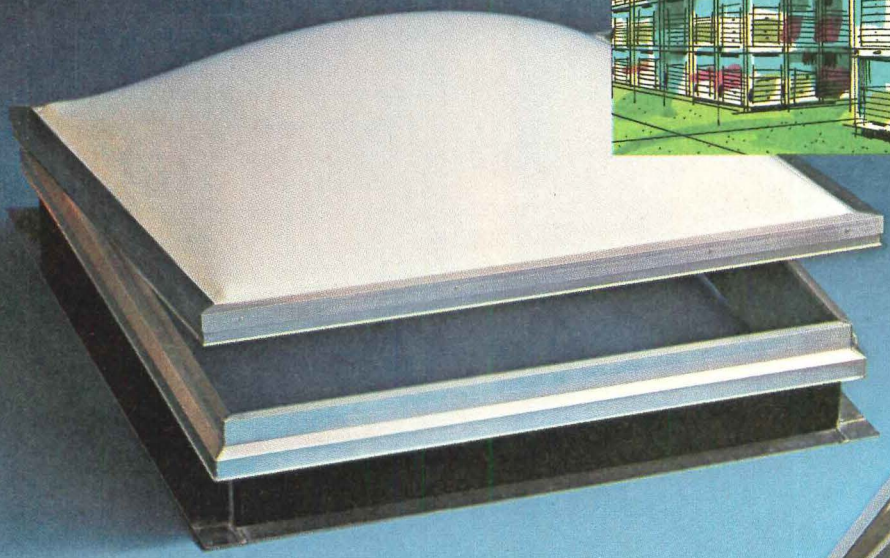
Name_____ Position_____

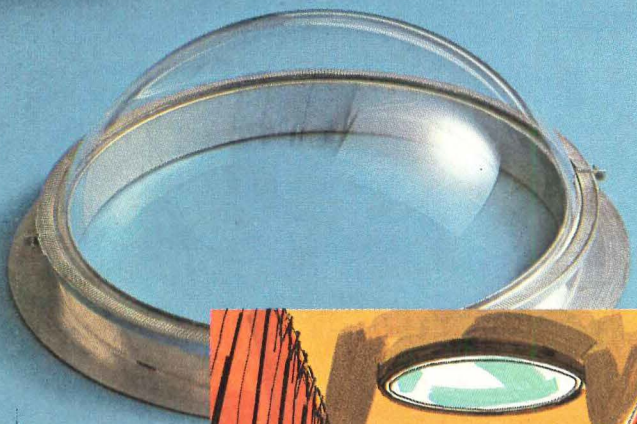
Firm_____

Address_____

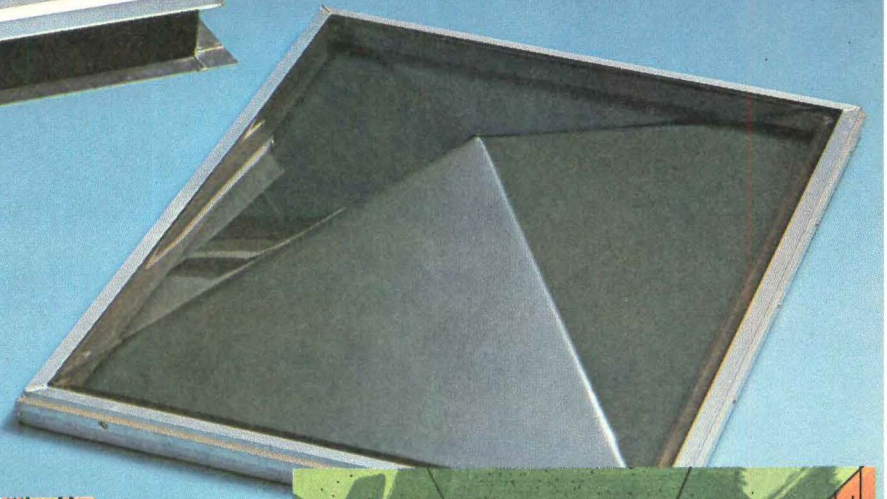
City_____ State_____ Zip_____













Plexiglas® solves skylight design problems

You have a virtually unlimited choice of ready-made, well-designed and highly functional skylights to work with when you specify the one and only time-proved plastic skylight glazing material—Plexiglas acrylic plastic.

Skylight shapes in Plexiglas include domes and pyramids in circles, rectangles and squares. Both single and double domes can be specified in colorless, in light-diffusing white translucent or in solar-controlling transparent bronze and grey tints.

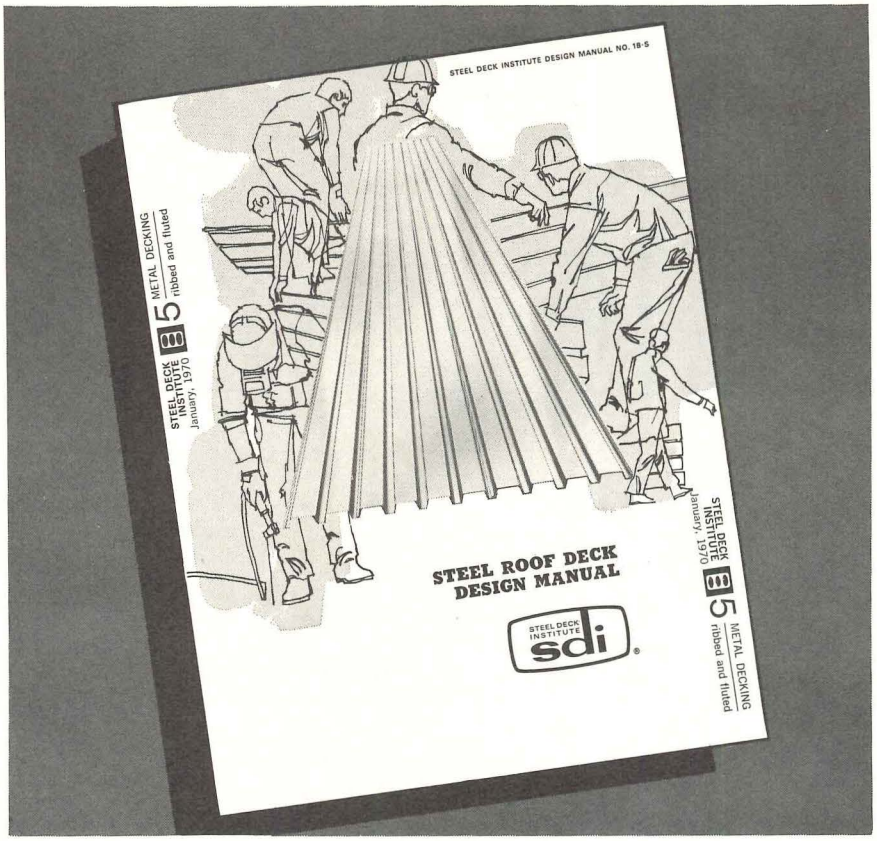
Plexiglas is the only plastic skylight material that has more than a quarter of a century of successful outdoor use to prove its weather and breakage resistance. Its daylight transmitting properties are unsurpassed by other skylight glazing materials.

In addition to standard skylight applications, Plexiglas is used in heat and smoke venting domes, ventilating domes and roof scuttles.

Sizes up to 92″ x 92″ are available as standards (larger sizes are available on request) from skylight manufacturers across the country. Write for the names of suppliers near you.

Plexiglas is made only by ROHM AND HAAS
PHILADELPHIA, PENNSYLVANIA 19105

On Readers' Service Card, Circle No. 353



1970 DESIGN MANUAL FOR **STEEL ROOF DECK...**

New 12 page design manual contains standard load tables, complete list of fire ratings... latest revision of the Basic Design Specifications and SDI Code of Recommended Standard Practice ... and suggested Architects Specifications.

For the first time, information on Site Storage, Erection and Accessories is included... the 1970 Manual will serve as a reliable reference for your future roof designs.

STEEL DECK INSTITUTE

STEEL DECK INSTITUTE sdi ®

Airtherm Manufacturing Co. • Armco Steel Corp. • Bowman Building Products Div., Cyclops Corp. • The Ceco Corp. • Epic Metals Corp. • The Goldsmith Metal Lath Co. • Granco Steel Products Co. • Inland-Ryerson Construction Products Co. • Macomber, Inc. • The R. C. Mahon Co. • Merco Manufacturing, Inc. Republic Steel Corp. Mfg. Div. • H. H. Robertson Co. • Roll Form Products, Inc. Rosewall Industries, Inc. • United Steel Deck, Inc. • Wheeling Corrugating Co.

For free copy fill in coupon and clip to your letterhead

STEEL DECK INSTITUTE, 9836 W. Roosevelt Rd., Westchester, Ill. 60153

Please send me the 1970 Steel Roof Deck Design Manual

NAME_____

TITLE_____

On Readers' Service Card, Circle No. 390

(Continued from page 184)

deed for "the income difference and effective purchasing power of the Boston family (described in the book) is about 10 times greater than the Lima family (also described)" and, "no one really has an honest answer or consequent action for the 300 million people of Latin America whose number will reach 600 million people within 25 years . . . the well established working class family of Lima, with a relatively good income by local standards is still far below the officially defined poverty line of the U.S. . . ." So with all our bellyaching, we're doing O.K. Jack.

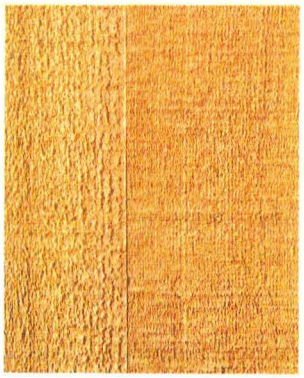
The conclusion is inescapable — we as a nation suffer from the troubles-of-the-rich. We have a vast land, vastly underpopulated in comparison with most developed countries; we use up at least half the world's resources though comprising only a small part of the world's population; and we have the highest consumption level per capita of any nation past or present. We have generally succeeded in the primary task of having enough goods to provide for all, at levels well beyond survival needs. The worst of our city slums would appear as palaces to those who sleep on the streets of Calcutta or live in the *barriadas* in Lima or outside the bureaucrat's dream, which is called Brasilia, or on the boats of Hong Kong. And so with food, clothing, medical care, education, and transportation. Who can deny that we're #1, so why our malaise?

The liberal hand-wringing over the plight of our urbanized poor is, to my mind, a cover up concealing the real question asked by Robert Theobold: "Do we want or need the ever increasing standards of living that the wondrous system we have constructed will miraculously provide?" For the typical middle-aged American, the answer will be an echo of King Farouk's, "If you don't have as much to eat today as you had yesterday, you feel poor."

Fortunately, there are those with another answer: those who look not to a dead-end society of wastrels and consumers, but a symbiotic society of makers and users. They stand for the quality of life and not the quantity of goods, an attitude beautifully explained by a man too little known in this country and in his native England, E.F. Schumacher. In a number of short essays called *"Buddhist Eco-*

(Continued on page 200)

START WITH WOOD



FINISH WITH OLYMPIC STAIN



Costs less than paint.

Easier to apply than paint.

Lasts longer than paint.

Protects wood with P.M.O.

Guaranteed not to crack, peel or blister.

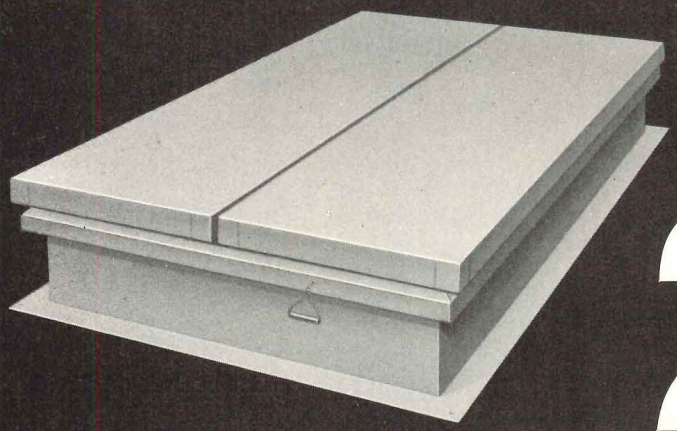
66 Colors, solid or semi-transparent.

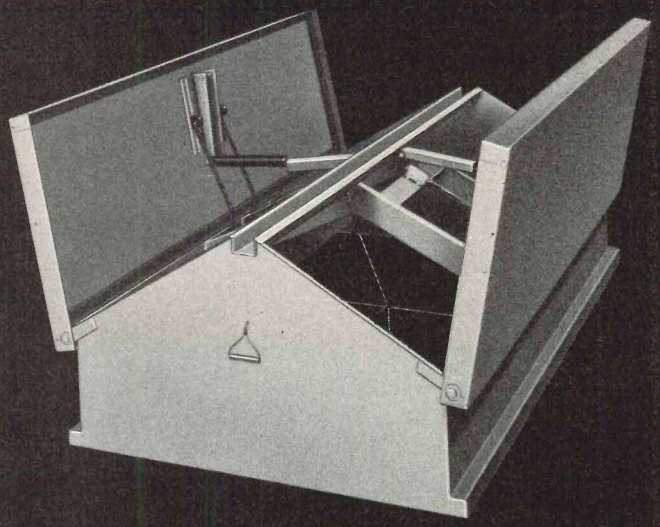


Design by:
Callister and Payne

For color samples on wood and A.I.A. Manual, write :Dept. O,
1118 N.W. Leary Way
Seattle, Washington 98107
Olympic Stain,
A division of COMERCO, INC.

On Readers' Service Card,
Circle No. 339





2 new milcor® heat and smoke vents

tested, approved and labeled by both Underwriters' Laboratories and Factory Mutual

Provide immediate automatic release of heat, smoke and noxious gas in the event of fire; retard fire's spread; limit damage.

Comply with the rigid standards of Underwriters' Laboratories and Factory Mutual to assure trouble-free performance.

Available in two styles. To meet varying architectural preference, Milcor Heat and Smoke Vents are offered in a modern low profile style, and a sloped cover style that minimizes snow build-up.

Newest members of a complete line. Milcor roof hatches, sidewalk doors, floor doors and ceiling access doors are available in a wide choice of metals, finishes and sizes.

Specials fabricated to your needs. We welcome inquiries for special units and will either modify one of our standard models or custom design one to match your requirements.

INLAND RYERSON

General Offices: Chicago, Illinois



A member of the INLAND steel family

Write for the Milcor Roof Hatches and Doors Catalog No. 33-2. Address requests to Inland-Ryerson Construction Products Company, Dept. D, 4069 West Burnham Street, Milwaukee, Wisconsin 53201.

AO-33-3

On Readers' Service Card, Circle No. 401



The beauty we show here is "BONNIE BRAE"

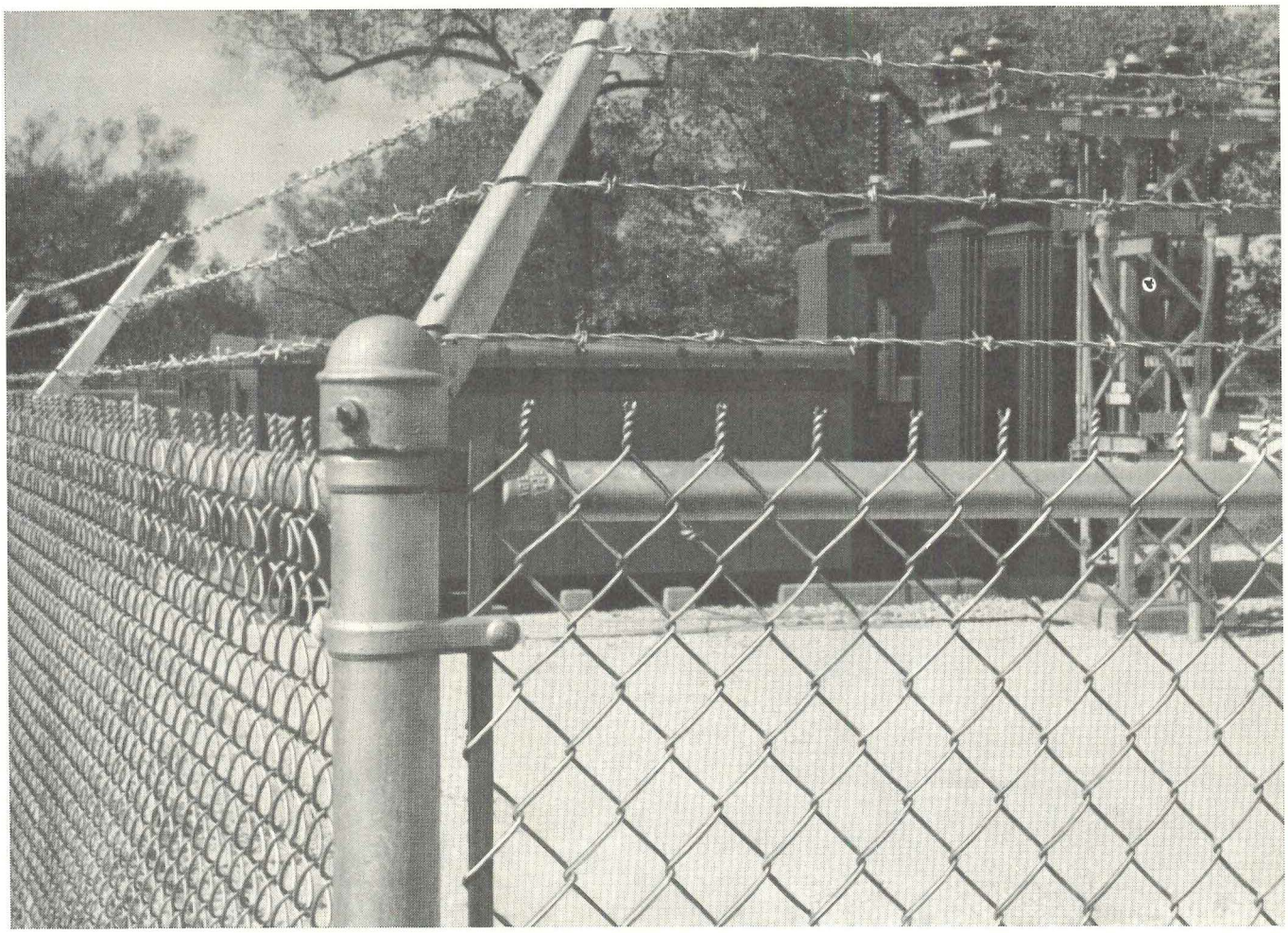
"BONNIE BRAE" by PATCRAFT . . . gives you a distinctive, custom look . . . with clear, bright colors that will retain their fresh look even in heavy soil areas . . . because it's constructed of Antron® II nylon—DuPont's newest and best fiber! The super-tight construction assures no texture change in traffic areas and above-standard weight assures years of good wear. A unique space dyeing technique permits up to 3000 yards of matching dye lots.

Specifications and sample swatches furnished upon request.
PATCRAFT MILLS, INC., Dalton, Georgia.

On Readers' Service Card, Circle No. 368

the finishing touch
. . . carpet
by

Patcraft
CARPETS OF DISTINCTION



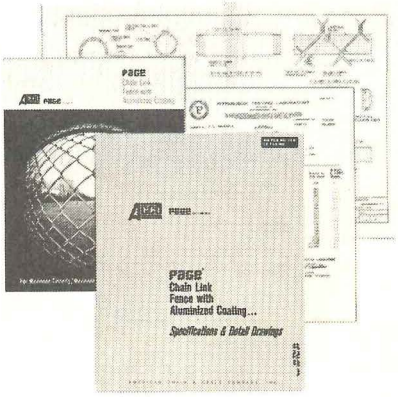
A PAGE® fence protects itself beautifully.

In fact, corrosion protection comes natural to *Page* Aluminized Fence Fabric. Its aluminum coating (applied over high strength steel wire) oxidizes when exposed to the atmosphere. Result? An anti-corrosive film—quite impregnable—forms on the surface. This film actually heals itself when damaged by impact. Moreover, *Page* chain link construction is incredibly strong.

So, years after installation a *Page* fence still has that "just-installed" look. Clean. Uncluttered. Beautiful. Without having had any maintenance. Not even painting.

Is it any wonder that, per fence dollar, *Page* fencing easily outlasts the best galvanized fabrics. Several times over. You'd expect it to cost more to install. But it doesn't.

Next time specify *Page* Aluminized Fence Fabric. A beautiful way to save money in fencing. Year after year.



Get this fence spec kit and save design time.

Helps you plan the right specs for chain link fencing. Packed with data and drawings on styles, wire gages, gates, back stops, framework, ASTM Specification A491-63T, lab reports and work sheets. Write: Page Division of Acco (American Chain & Cable Co.), P. O. Box 390, Wilkes-Barre, Pa. 18703.

ACCO PAGE DIVISION

On Readers' Service Card, Circle No. 376

On Readers' Service Card, Circle No. 415

NuTone presents...

A fine new howdoyoudo.





DIRECT-A-COM. NuTone now offers two totally new voice communications systems. They have been designed specifically for low and medium high-rise multi-family buildings. They fit in beautifully with any architectural style and lobby decor. Tenants can talk to callers without opening doors or unlocking main entrance way.

Many features and options: Alphabetical tenant name panels • "Auto-Call" transfer system with "busy" light for buildings with two entrances • Post Office Master Lock Door Release • Minimum system wiring for easy installation—as few as three common wires; one signal wire per apartment • Overall system volume control • Plug-in terminal strips • Silver or brass anodized aluminum finish.

Apartment speakers have easy-to-operate push-button controls. Separate entrance door lock control. Exceptional voice clarity. Eggshell white and styled just right.

It really is a fine new howdoyoudo. Get the full story from your NuTone distributor today. Or, just drop a line to Dept. PA-4.

NuTone DIVISION SCOVILL

Madison and Red Bank Roads, Cincinnati, Ohio 45227

NEW DIMENSIONS IN BETTER LIVING

Some more good things for apartments from NuTone

And all new.



MAIL BOXES. NuTone Mail Boxes really round out your DIRECT-A-COM lobby system.
Perfectly matched vertical units are constructed of steel or aluminum and meet all federal postal regulations. Blend beautifully with any architectural style or lobby decor. Match perfectly in size, style and color with the NuTone Direct-A-Com. Also available: matching wall-mounted magazine receptacle.



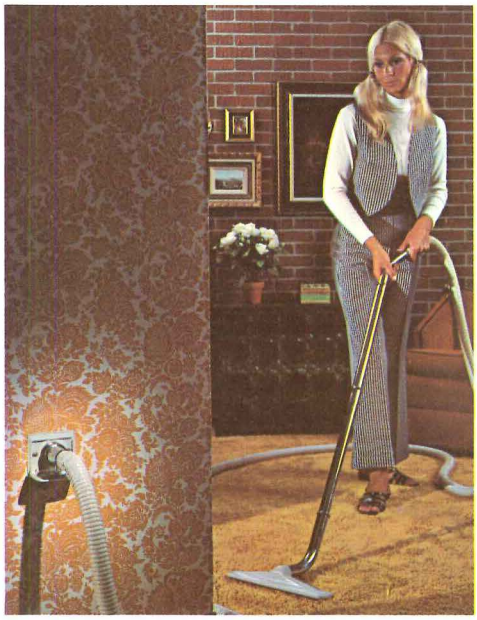
HEATERS. Another new one from NuTone, and perfect for apartments. The two bulb model shown has a compact sculptured design for medium size baths. It's pre-wired for one or two bulb operation. Quiet cooling system assures safe internal temperatures. This one really heats, clear down to the floor.



DOOR CHIMES. New. And perfect for apartments. Larger "Pre-Vue" outside nameplate with sculptured push button. Plenty of room for name and apartment number. Really nice.



VENTILATING FANS. Today's modern apartment needs good ventilation and NuTone fills the need. Shown is a flush mounted ventilator for ceiling or wall. Great for apartment bathrooms. Can be painted or papered to match room decor, but is beautiful as is. Quiet. Efficient. It's a great product.



CLEANING SYSTEM. Here's a brand new, *lower cost* central cleaning system offering the same built-in convenience, quiet efficiency and easy, low-cost installation as its big brother. Has decorator styled automatic on/off wall inlet. Large capacity disposable soil bag. Dependable, maintenance-free operation. Just right for today's modern apartment needs.
Your NuTone distributor can tell you all about it. Call him.

These are just five of the fine NuTone products for apartments . . . there are dozens more. See the complete line at your NuTone distributor. NuTone has the products, availability, service and price to meet every apartment construction need.

NuTone DIVISION SCOVILL

Madison and Red Bank Roads, Cincinnati, Ohio 45227
NEW DIMENSIONS IN BETTER LIVING
Dept. PA-4

Form 380 Printed in U.S.A.

TCS

Why coat stainless steel?

. . . because proper soldering of stainless steel requires an extra step of pretinning or use of corrosive fluxes. These fluxes must be removed after soldering to prevent attack on the stainless.

TCS solders perfectly using a non-corrosive rosin flux. Pretinning is unnecessary.

. . . because architectural metals are subject to corrosive attack in severe chemical, industrial or marine environments.

TCS enhances the proven ability of stainless steel to resist corrosive attack under these conditions.

. . . because the reflective surface of stainless steel may sometimes be undesirable in architectural applications.

TCS weathers naturally to a predictable, uniform and attractive dark gray. If color is desired, it can also be painted.

TCS, Terne-Coated Stainless Steel, is 304 nickel-chrome stainless steel covered on both sides with terne alloy (80% lead, 20% tin). It is a product of Follansbee Steel Corporation, Follansbee, West Virginia.

FOLLANSBEE

FOLLANSBEE STEEL CORPORATION • FOLLANSBEE, WEST VIRGINIA

Big Roof ...or small

CALL ON



BARRETT.



Big projects. Small jobs. Complex roof designs requiring special specifications. Wherever a roof goes on, Barrett can help. Developing better roofing products and systems has been our business for 116 years. To help architects and contractors plan roofs and solve problems, we have many resources: a broad range of specifications and products...a network of Approved Roofers...a large force of experienced field technicians. When planning your next project, large or small, call on Barrett. We'd like to help.

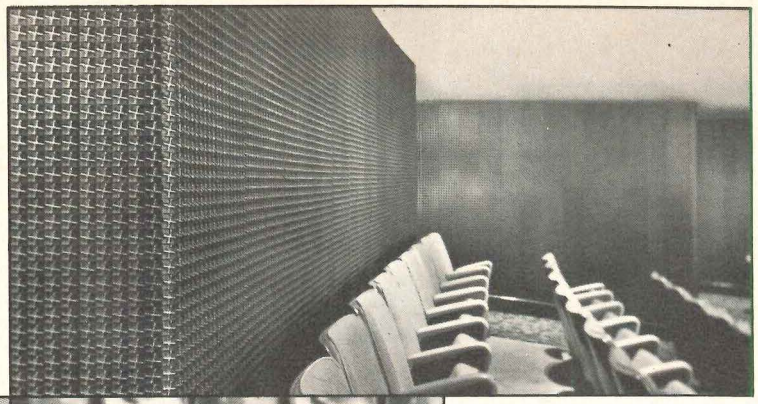
Everything from the deck up!

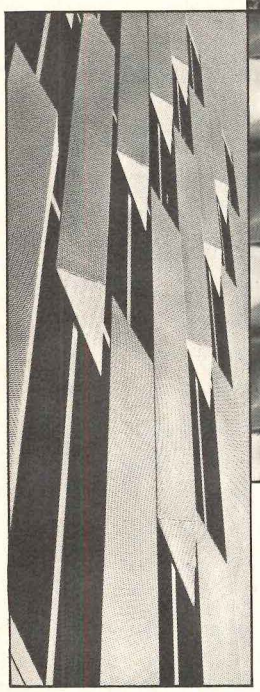
- Liquid and Sheet Vapor Barriers
- Roof Insulations
- Cant and Edge Strips
- Coated Roofing Sheets for 2-ply and 3-ply Roofing Systems
- Chem-Ply® One-ply Roofing System
- Asbestos Felt
- Asbestos Reinforced Flashing
- Chem-Ply One-ply Flashing
- Coal Tar Pitch
- Asphalts
- Expansion Joint Shield
- Holt Drain Fixtures

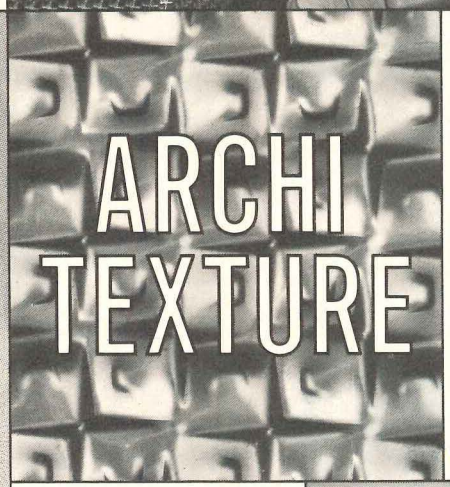
CELOTEX
REG U S PAT OFF
BUILDING PRODUCTS

THE CELOTEX CORPORATION
Tampa • Florida 33607
Subsidiary of Jim Walter Corporation

On Readers' Service Card, Circle No. 331





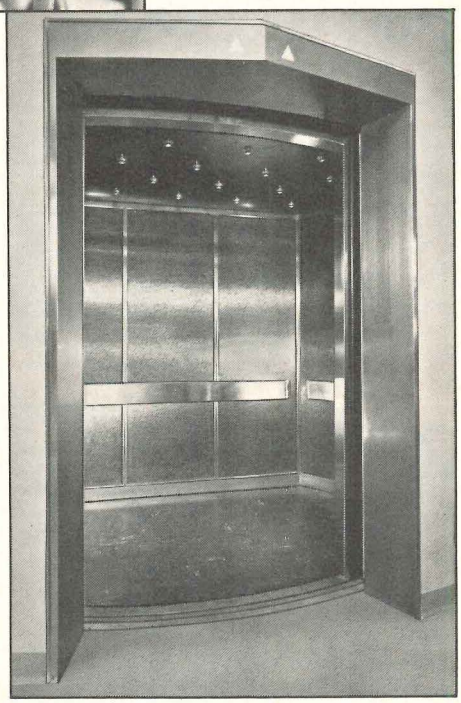


ARCHI TEXTURE

1. Auditorium Acoustical Paneling, 1-RL, Rigid-Tex Stainless Perforated, Colored and Highlighted.

3. Elevator Wainscoating: Rigid-Tex 1-NA, Skylon, Niagara Falls, Ontario.

2. Curtain Wall Panels, Rigid-Tex Stainless Medallion, 22 gauge 6-WL, Jefferson Trust & Savings Bank, Peoria, Illinois.



Why do so many leading architects specify Rigid-Tex Metals? Its inherent beauty and distinctive appearance? Mar-resistance (to stay new looking longer? Strength? Controlled light diffusion (to eliminate glare)? Weight reduction? Better acoustical properties? Yes — all these reasons and more ■ For almost three decades this unique material, available in all metals — in almost any form or finish — have been specified for curtain wall panels ■ soffits ■ mullions ■ doors ■ walls ■ ceilings ■ push plates ■ kick plates ■ elevator interiors ■ escalator balustrades ■ switch plates and even contemporary sculpture ■ Just about any place where wear and abuse may occur or a functional use of metal is indicated ■ Let RTM open vistas of design opportunities for you ■ Send right now for the Architect's Applications Portfolio with Pattern Chart ■ Rigidized Metals Corporation, 6881 Ohio Street, Buffalo, N.Y. ■ Zip code 14203.

P. S. In New York City? See RTM display at Architects Center, 101 Park Avenue or look in Sweet's Architectural Catalog File Sec. 3D.

THE ORIGINATOR

RIGID-TEX® METALS

On Readers' Service Card, Circle No. 365

(Continued from page 190)

nomics" Schumacher writes, "He (the modern economist) is used to measuring the standard of living by the amount of annual consumption assuming that a man who consumes more is 'better off' than a man who consumes less. A Buddhist economist would consider this approach excessively irrational. Since consumption is merely a means to human well being, the aim should be to obtain the maximum of well being with the minimum of consumption. Thus, if the purpose of clothing is a certain amount of temperature comfort and an attractive appearance, the task is to obtain this with the smallest possible effort, that is, with the smallest annual destruction of cloth and with the help of designs that involve the smallest possible input of toil. The less toil there is, the more time and strength for artistic creativity. It would be highly uneconomic for instance to go in for complicated tailoring when a much more beautiful effect can be achieved by the skillful draping of uncut material. It would be the height of folly to make material that would wear out quickly and the height of barbarity to make anything ugly, shabby, or mean."

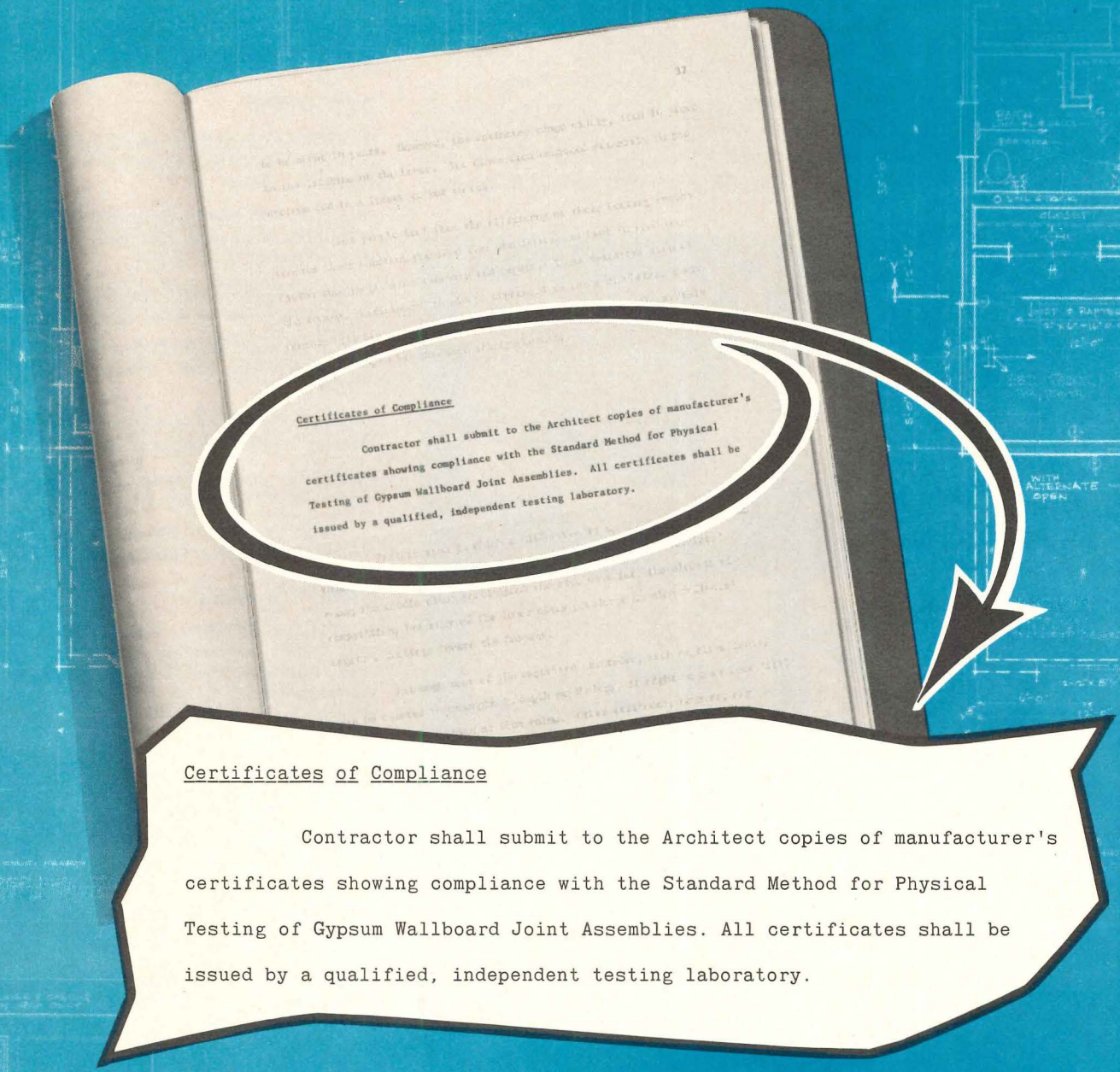
Clothing, may I add, is a form of shelter; buildings, a communal form of clothing.

In a perverse way, it is a relief to turn to *An Introduction to Town and Country Planning*. First published in 1951 when its ideas and information were already 20 years behind the times, it now reads in its "completely revised" edition like deadpan humor, a commodity, I've been told that is rare in the authors' native habitat — the Antipodes.

In almost 400 pages (plus a preface by Patrick Abercrombie) we are told that all that really needs knowing about city and regional planning, including an historical background, all delivered in a style . . . well! examples are best: On aesthetics, the authors find, "There is a beauty in formality as well as informality. The picturesque had an almost universal appeal and does not make great demands on the intellect: rather it appeals to the emotions. Such beauty as we find in the hill towns of Umbria or in the villages of Holland is undeniable, and in its appropriate setting, quite the right thing. There are occasions, however, that call for formal treatment, whether it be on an in-

(Continued on page 202)

Insist that the sub-contractor furnish a letter of certification for every job he does with gypsum wallboard.



Certificates of Compliance

Contractor shall submit to the Architect copies of manufacturer's certificates showing compliance with the Standard Method for Physical Testing of Gypsum Wallboard Joint Assemblies. All certificates shall be issued by a qualified, independent testing laboratory.

SPECIFY CERTIFICATION.

What does certification mean to you? It assures stronger joints, walls and ceilings that stay smooth. It means you can now specify for wood or steel framing, a gypsum wallboard tested against an established performance standard. These tests proved this board far superior to ordinary tapered edge wallboard.

Reminder: The gypsum wallboard used by the sub-contractor should be tested and the results certified by an impartial testing firm.

To be sure: specify a certification on every job. See your U.S.G. Architect Service man for details, or write to us at 101 S. Wacker Dr., Chicago, Ill. 60606, Dept. PA-04.

UNITED STATES GYPSUM

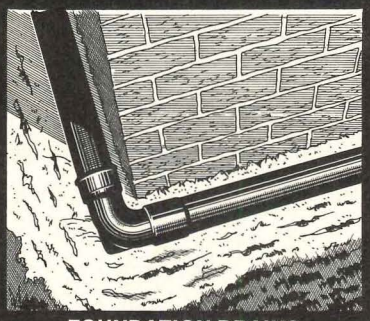
On Readers' Service Card, Circle No. 404

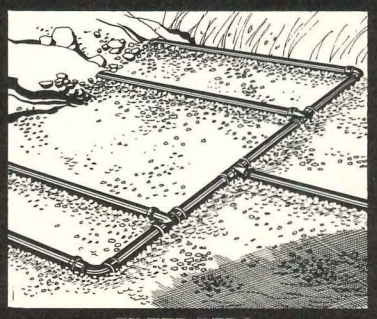
(Continued from page 200)
timate scale or in the 'Grand Manner'." Equally perceptive is this little gem on architectural scale: "It is not convenient for a man to step up more than seven inches at a time, and to protect him from falling over a balcony, it should have a railing or balustrade about three feet high."

If it weren't for the weight, I'd recommend this opus to all insomniacs as a nonaddictive soporific or, and more to the point, let me recommend it as a model for textbook writers whose motto seems to be "bore them to death and you'll have no controversy."

Epilogue: Andrei Alexeivitch Amalrik is a Soviet historian, expelled from Moscow University in 1963 and presently growing tomatoes and cucumbers "in patient expectation of further imprisonment." In a book (to be published here in the fall), he has written "Western planners, I am told, are concerned over problems created by progress. In 5th-Century Rome, with its six-story houses and its steam-driven mills, a planner might have predicted 20-story houses and mechanized industry for the 6th Century. However, in the 6th Century, goats were chewing at the grass of the Forum." This may be prophecy, except, who can say the goats will survive?


DOWNSPOUTS


FOUNDATION DRAINS


FILTER BEDS


GOLF COURSES



PARKING LOTS


WET SPOTS *ANYWHERE*

Architects are constantly discovering new uses for ORANGEBURG PIPE. To trigger some of your own ideas, send for your copy of our new Architects File containing complete information on all Orangeburg pipe products and their applications.

Only FLINTKOTE makes ORANGEBURG Pipe!

ORANGEBURG® PIPE FLINTKOTE®

The Flintkote Company • Pipe Products Group • Orangeburg, New York • Los Angeles and Newark, California • Ravenna, Ohio

On Readers' Service Card, Circle No. 428

NOTICES

NEW FIRMS

TRETHEWAY & STEIN, AIA, ARCHITECTS, B & B Building, 546 Hamilton St., Allentown, Pa. 18101.

COLLINS UHL HOISINGTON ANDERSON, Architects, Engineers, Planners, 33 State Rd., Princeton, N.J. 08540.

CHARLES H. BRITTAIN, ARCHITECT, 974 Curry Place, Macon, Ga. 31201.

SPACE USE MANAGEMENT, INC., 1041 E. Yorba Linda Blvd., Placentia, Calif. 92670.

WARREN C. FULLER, ARCHITECT, 657 Mission St., San Francisco, Calif. 94105.

WEEKS & ALLAN, North End, Market Square Mall, Knoxville, Tenn.

CONCEPT COORDINATES, INC., 24 East Andrews Dr., N.W., Atlanta, Ga. 30305.

NAME CHANGES

CHATELAIN, GAUGER & NOLAN, Architects & Engineer, recently became CHATELAIN, SAMPERTON & NOLAN, following the retirement of EARL V. GAUGER, AIA, with offices at 1632 K. Street, N.W., Washington, D.C.

GINOCCHIO, CROMWELL, CARTER & NEYLAND announces the continuation of the practice of architecture and engineering under the name of CROMWELL, NEYLAND, TRUEMPER, MILLETT, & GATCHELL.

DANIELIAN & MOON, Architects, will now be known as DANIELIAN MOON SAMPIERI & ILG, Architects and Planners.

PARTNERS & ASSOCIATES

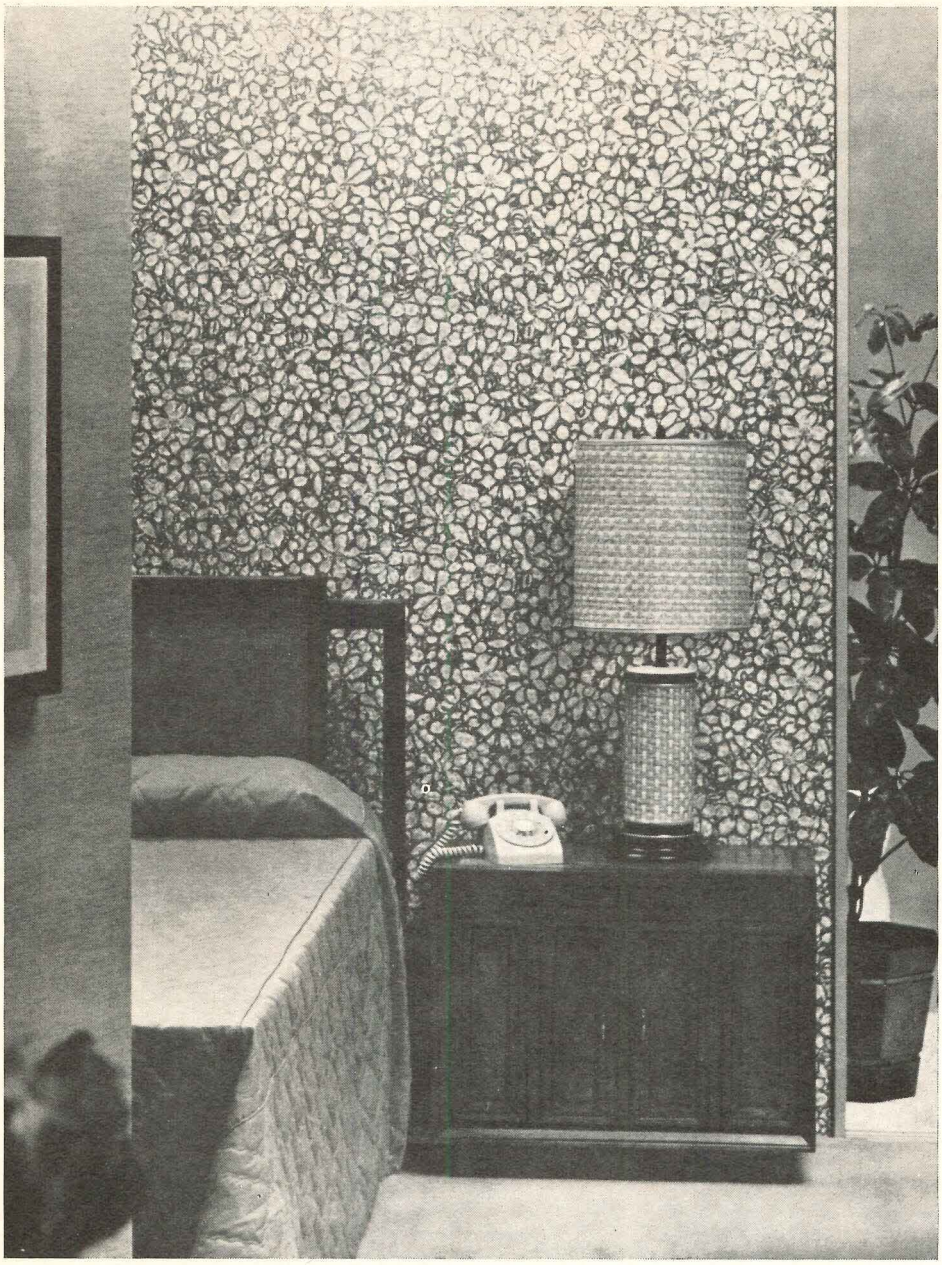
ARMAND BARTOS and ASSOCIATES, New York, N.Y., announced the appointment of MARTIN PRICE (P/A, Feb. 1970, p. 144) as partner in their firm. We regret that his name was spelled incorrectly in this listing.

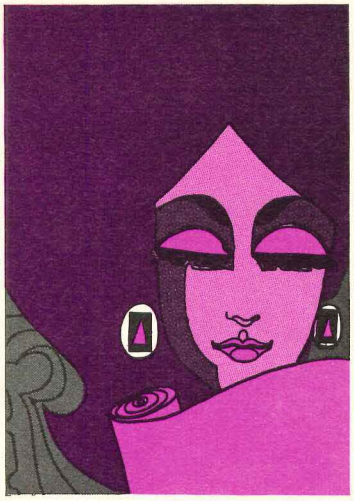
MOORE & SALSBURY, Architects AIA announce the appointment of ALEC C. FROST as associate.

GERALD J. PETERS and IRVING J. FLOTREE name R. CHANDLER SOGGE as partner of PETERS & FLOTREE, ARCHITECTS.

The partners of DENNY & RAY, AIA announce the appointment of MICHAEL N. WALKER, AIA as associate.

GEORGE M. EWING COMPANY, ARCHITECTS, PLANNERS, ENGINEERS, of Philadelphia and Washington, has announced the appointment of DONGKYU BAK, AIA, as a partner.





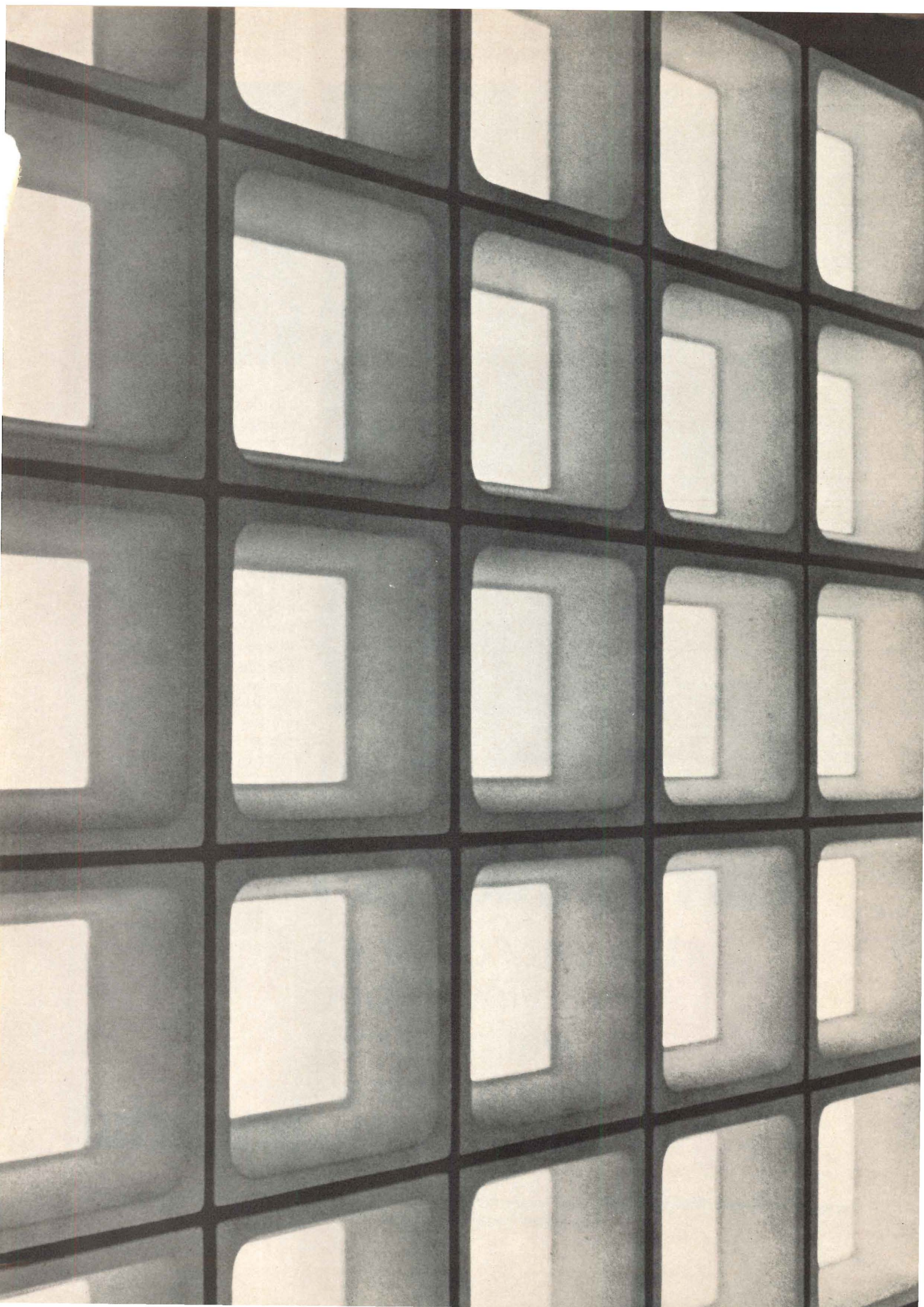
Dimensions 1 is an all vinyl 5-year guaranteed wallcovering designed especially for contract installations. It's ideal for hotels, motels, hospitals, offices, and restaurants. By incorporating Imperial's vinyl technology with 100% AVISCO® rayon fabric backing, Imperial has created an outstanding collection of superbly designed richly textured wallcoverings in 153 distinctive patterns. Dimensions 1 is a Type 1 wallcovering as prescribed in Federal wallcovering product specifications CCC-W-408. It is strippable, scrubbable, scuff and stain resistant, and colorfast. It provides exceptional overall bactericidal qualities and is highly mildew resistant. Its 24-inch width assures easier and quicker hanging with less waste. No expensive adhesives are required for hanging Dimensions 1 . . . just a good wheat paste. Write today for Imperial's new full-color Dimensions 1 brochure.

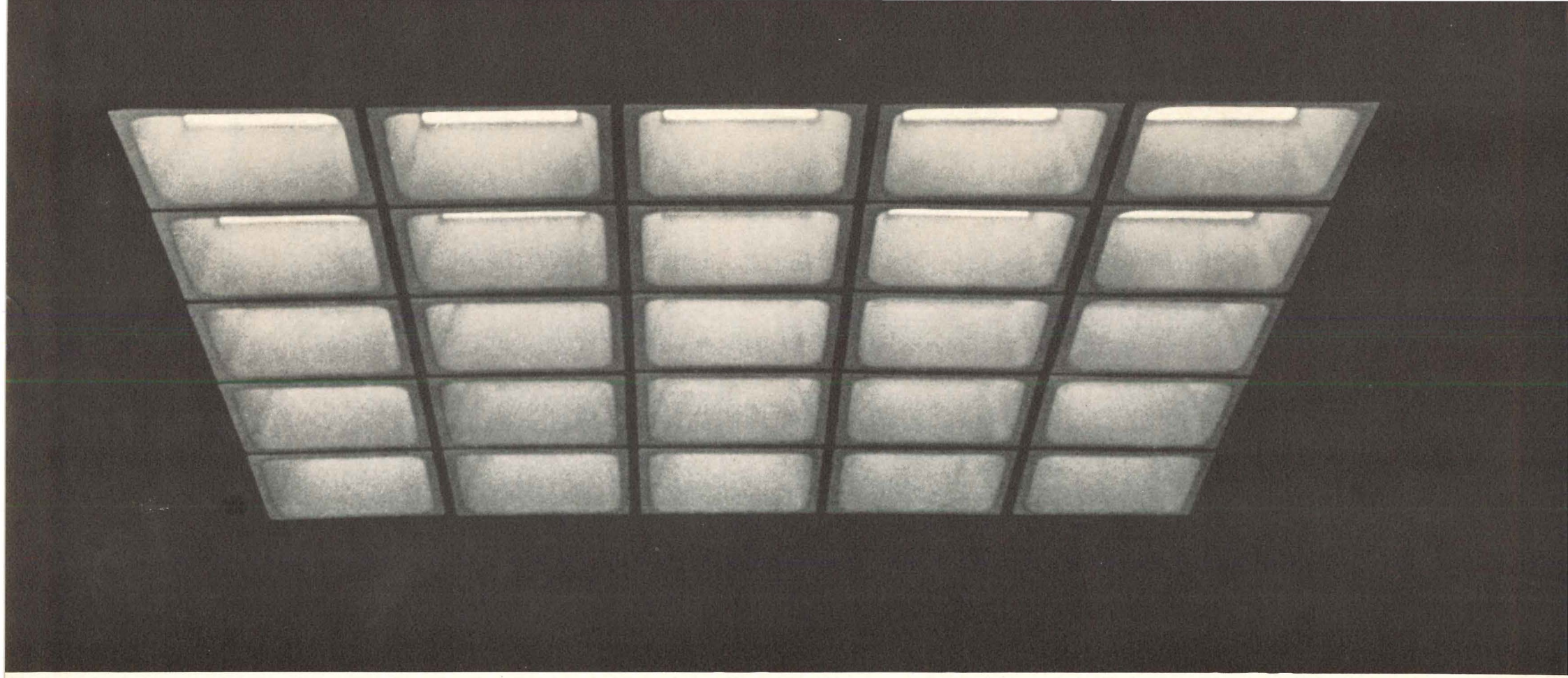
dimensions 1

the only contract vinyl fabric wallcovering guaranteed for five years **imperial**

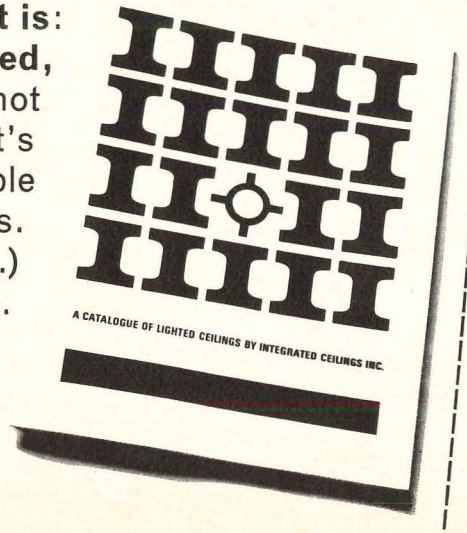
Imperial Wallpaper Mill, Inc., Subsidiary of Imperial Paper Company, 3645 Warrensville Center Road, Cleveland, Ohio 44122

On Readers' Service Card, Circle No. 431





That's right. That's what it is: A three-dimensional, suspended, luminous ceiling. No. It's not concrete. It just looks like it. It's Sculptura—the newest unbeatable system from Integrated Ceilings. (You're looking at the 3′ x 3′ modules.) Write us and we'll tell you how we did it.



On Readers' Service Card, Circle No. 379

Integrated Ceilings, Inc. 2231 Colby Ave. Los Angeles 90064 Phone (213) 272-1136

Okay. I give up.

Tell me about Sculptura. (And send me your new full line brochure while you're at it.) pa

Name_____

Firm_____

Address_____

City_____ State_____ Zip_____

JOBS AND MEN

SITUATIONS OPEN

ARCHITECT—Major midwestern architectural firm has opening for a project manager with proven administrative and design ability. The position involves supervision of project teams, client contact, and co-ordination of engineering and other disciplines through to project completion. Diversified, nationwide practice includes highest quality educational, industrial, institutional and urban projects. Superior opportunity to progress with the firm and move into key position. Moving expenses paid. Salary open, but commensurate with qualifications. Send resume in confidence to Box #1361-910, PROGRESSIVE ARCHITECTURE.

ARCHITECT or ARCHITECTURAL GRADUATE—Three years experience. Position open in small expanding office in central Connecticut. Must be able to design and produce working drawings. Qualified man will work directly with clients and supervise construction. Send complete resume and salary expected. Box #1361-983 PROGRESSIVE ARCHITECTURE.

ARCHITECT—Preferably experienced with the system techniques of construction. Desirous and able to promote the use of advanced technology and to incorporate sound techniques of Management and Economics in the development of Architectural Design. Send resume to Fredrick A. Nassaux—CONTROL, Trust Building, Chamberburg, Pennsylvania.

ARCHITECT—Registered, with a proven record of creative ability in commercial and industrial projects and willing to accept full responsibility for all phases of architecture. Fast growing, national finance-design-engineering-build firm based in Detroit. Your duties will include site planning, preliminary sketches, creative design, architectural materials and systems selection and supervision of final drawings and interior layouts. Excellent salary, bonus, all benefits and profit sharing. Send resume in confidence to M. B. Shea, SIMONE CORP., 15800 West McNichols Road, Detroit, Michigan 48235.

ARCHITECT wanted for administrator-Production Coordinator. Should be conversant with operation of medium sized office. Registration preferred. Salary commensurate with qualifications and experience. Send confidential resume and salary expected to Powell-Edge Partnership, Architects, Phipps Plaza, Palm Baech, Florida 33480.

ARCHITECTS—Facilities planning consultant. International planning and design consulting firm with offices in New York City and London seeks professionals for top level client contact, facilities requirements programming and problem solving, and report writing. Primary responsibilities will concern defining and solving client problems related to corporate headquarters, government office space and institution planning. We offer opportunities for personal growth, salaries commensurate with qualifications, increases based on mert, and a comprehensive benefit program including deferred profit sharing. Please submit confidential resume of experience and earnings to: Becker & Becker Associates, Inc., Seagram Building, 375 Park Avenue, New York, New York 10022.

ARCHITECTS—Growing Pittsburgh area architectural-planning firm has opening for project architect with proven administrative ability. The position involves supervision of project teams, client contact and coordination of engineering and other disciplines through to project completion. Educational, industrial and urban projects of unusual interest. Superior opportunity. Also an opening for a job captain with experience in production of working drawings for large projects. Must be capable of heading team of draftsman and of coordinating work with engineering disciplines. Contact or send resume to: Celli-Flynn & Associates, Architects Engineers Planners, 335 Shaw Avenue, McKeeport, Pennsylvania 15132. Telephone: Area Code 412 678-8808 or 461-6622.

ARCHITECTURAL DESIGNER—Design oriented, medium-size architectural and planning firm, located in the midwest area, has opening for a creative designer to develop outstanding concepts, work with clients, direct design teams and control design development through production phases. Diversified and expanding nationwide practice includes significant educational, industrial, institutional, housing and urban projects. The position offers excellent opportunity for professional development and associateship. Liberal salary based on talent, capability and experience. Replies will be handled confidentially and should contain sufficient information to establish a basis for further discussion. Box #1361-913, PROGRESSIVE ARCHITECTURE. An equal opportunity employer.

ARCHITECTURAL DESIGNERS/DRAFTSMEN—Expanding Baltimore firm has permanent openings for personnel seeking challenging responsibilities. A team approach provides an opportunity to become involved in all phases of work and assures personal professional growth. Practice includes planning, architecture, urban design, research and development. Join a stimulating professional group dedicated to quality work. Salary commensurate with qualifications; periodic increases based on merit; comprehensive benefit program includes medical and life insurance plan; and liberal relocation allowance. Please send resume to Vice President of Personnel, RTKL Inc., 806 Cathedral Street, Baltimore, Maryland 21201. An equal opportunity employer.

ARCHITECTURAL DRAFTSMAN—Individual needed with three to five years experience in production of working drawings for shopping centers. To work for one of nation's largest developers, designers, and builders of shopping centers. Send resume to Raymond B. Johnson, Personnel Department, P. O. Box 879, Johnstown, Pennsylvania 15907.

Advertising Rates

Standard charge for each unit is Fifteen Dollars, with a maximum of 50 words. In counting words your complete address (any address) counts as five words, a box number as three words. Two units may be purchased for thirty dollars, with a maximum of 100 words. Check or money order should accompany advertisement and be mailed to Jobs & Men c/o Progressive Architecture, 600 Summer Street, Stamford, Conn. 06904. Insertions will be accepted not later than the 1st of the month preceding month of publication. Box number replies should be addressed as noted above with the box number placed in lower left hand corner of envelope.

ARCHITECTURAL EDUCATORS—Two newly established positions beginning in Fall of 1970. Opportunity in Architecture, Landscape Architecture, Interior Design of Building Technology. Appointment at higher ranks is possible for qualified persons. Master's degree required; combination of registration with teaching and professional experience preferred. Send resume to: Robert E. McConnell, Head, Department of Art and Architecture, The University of Idaho, Moscow, Idaho 83843.

DESIGNER: Well established and fast growing firm needs designer with a creative flair for product design, renderings, catalogs, customer consultation and an ability to sketch on the spot. Phone me collect, 317-289-2541, Jack Reichart, Vice Pres., Excel Mfg. Corp., Muncie, Indiana.

PLANNER—ECONOMIST—MANAGEMENT—COUNSELOR—Having a broad experience with the planning, financing, pricing, managing and negotiating of construction projects. Send resume to—Fredrick A. Nassaux—CONTROL, 309 Trust Building, Chambersburg, Pennsylvania.

PROJECT ARCHITECT—Expanding Architectural Engineering firm has opening for "talented" Project Designers and Draftsman. Located in Western New York and maintaining a regional practice through the states of New York, Pennsylvania, Vermont, New Hampshire and Connecticut, this firm can provide exciting challenges to architects orientated to the design of medical, educational, commercial and industrial facilities. License and/or degree helpful, but not mandatory. Please send confidential resume, including salary requirements to: Mr. Franklin D. Guidone, AIA, Director of Design. TNE CONNON PARTNERSHIP, 2637 Main Street, Niagara Falls, New York 14305.

PROJECT ARCHITECT—A leading midwest architectural firm with a nationwide practice needs imaginative and ambitious architect to direct and coordinate project design teams on a wide variety of large-scale institutional, industrial, educational, housing and urban design projects. Excellent salary and meaningful opportunity for advancement. Applicant must possess high professional standards and leadership capability. Send confidential resume to Box #1361-915, PROGRESSIVE ARCHITECTURE.

TOP ARCHITECTURAL DESIGNER—Design position available to a registered Architect with a minimum of 8 yrs. comprehensive experience. Position includes directing design teams for varied projects at a large firm located in the Mid-Atlantic Region. Work includes high rise office buildings, commercial and industrial buildings, schools, hospitals and laboratories. Excellent compensation, benefit plans, and growth potential are available. Location permits year around fishing, hunting, golfing, swimming, hiking and skiing. Submit confidential resume of experience and earnings to Box #1361-992 PROGRESSIVE ARCHITECTURE.

SITUATIONS WANTED

ARCHITECT—Age 34—12 years comprehensive experience with institutional & industrial projects. Currently in small practice. Wish to relocate anywhere with progressive firm, small or medium sized with position leading to associateship or partnership. Full

Continued on page 208



On Readers' Service Card, Circle No. 429

SPECIFY CARPETING "Made with Brunsmet®"



Otherwise, you may be shocked.

The market is full of carpeting which is supposed to be "static controlled." Some manufacturers claim they can disperse electrostatic charges by weaving or plying wires into their product. Others use yarn treated with antistat chemicals. But wires break and chemicals wear off. The results are shocking! □ On the other hand, there are 30 manufacturers of carpeting who use textile-quality Brunsmet® stainless steel fibers in their yarn to control static. Brunsmet is a metal fiber you can't see or feel. It will provide superior static control —well within or below the optimum range of 2500 to 3500 static volts—for the life of the carpeting. □ Don't let yourself in for a lot of static. When you want shock free carpeting, specify "Made with Brunsmet." That's all you really have to say.

SEND FOR FREE BOOKLET "NEW DOORS TO DESIGN"

A complicated static control system described in non-technical terms. Write for it today . . . and we'll also send you the names of the 30 leading carpet manufacturers who can supply you with fine carpeting made with Brunsmet stainless steel fibers.

BRUNSMET® METAL FIBERS

TECHNICAL PRODUCTS DIVISION

Brunswick

69 W. Washington Street/Chicago, Ill. 60602

BRUNSMET is the Registered Trademark of the Brunswick Corporation for its complete line of metal fibers.

On Readers' Service Card, Circle No. 396

JOBS AND MEN

Continued from page 206

details upon request. Box # 1361-898, PROGRESSIVE ARCHITECTURE.

ARCHITECT—38, registered Pennsylvania, Virginia, NCARB. Yale graduate, 12 years experience in design and construction top design offices. Presently in limited private practice and teaching architectural design. Interested in partnership with individual or firm seeking design partner. Prefer Washington, D.C., Maryland, Northern Virginia area, or Philadelphia. Box #1361-984, PROGRESSIVE ARCHITECTURE.

ARCHITECT—AIA, CSI NCARB, 44, Family. Phasing our fourteen successful years of own practice including wide range of building types and experience. Seeking position as project architect with major firm or staff architect with institution or corporation. Preferably west coast or abroad. Resume, references on request. Box #1361-960, PROGRESSIVE ARCHITECTURE.

ARCHITECT—Considering closing 20 years practice; desires responsible position in significant activity. Experienced in administration, design, construction documents. Supervision, long-range planning, feasibility studies, economic analysis. Registered architect 20 states (NCARB) and business, contracting, or professional. Box #1361-985, PROGRESSIVE ARCHITECTURE.

ISRAELI ARCHITECTS—1958 graduates, presently design consultants in Washington, D.C. seek accord with corporation/professional firm sufficiently advanced in industrialized housing techniques to implement & market 2 unique planning & design systems fitting (1) 3-D cluster communities and (2) low/high rise multifamily units both offering exciting design and cost reduction innovations developed from 7 years research work in Switzerland. Box 1361-986, PROGRESSIVE ARCHITECTURE.

PARTNERSHIP—of two young architects seeks association with architect anticipating retirement. Both partners are ambitious, determined and highly energetic with 4 to 5 years experience in a wide range of architectural projects. Recent work is in research and development of industrialized building systems. Box #1361-987.

PROJECT ARCHITECT—29, with family. Good, responsible, experience in all phases of practice with metropolitan Washington firms. Desires to relocate in Eastern New York State with office engaged in Educational, Institutional, request. Available Summer 1970. Box # 1361-988, PROGRESSIVE ARCHITECTURE.

REGISTERED ARCHITECT—A.I.A., NCARB, Twenty years experience in all phases of architecture. Currently in small practice. Wish to relocate in Aruba, N.A. or Virgin Islands. Can assume full responsibility. Resume upon request. Box #1361-989, PROGRESSIVE ARCHITECTURE.

REGISTERED ARCHITECT—2 states, 35 years old, family, 10 years diversified experience, responsibilities have included Chief Designer, and Project Architect for various firms. Desires challanging position with good opportunity for associateship with progressive firm doing contemporary work. Box #1361-990, PROGRESSIVE ARCHITECTURE.

REGISTERED Kentucky Architect desires association as resident architect. Will assist in any capacity such as obtaining site data, preparing construction drawings, specifications, and job supervision for project of any scope. Varied experience in all design types including areas of interior design for predetermined spaces. Box #1361-991, PROGRESSIVE ARCHITECTURE.

MISCELLANEOUS

ARCHITECTS' & DESIGNERS' PERSONNEL AGY—667 Madison Avenue, N.Y.C. (61st St.) TEmpleton 8-3722 Muriel Feder maintains close contact with the entire architectural & design fields, for the past 22 years. The "professional" job consultant for New York City and the nation, at all levels in the areas of architecture, planning, construction, engineering, interior design, space utilization, product and industrial design and exhibition design. Office personnel for the above fields. Confidential interviews by appointment.

CAREER BUILDERS AGENCY—Complete range of Architectural and Interior Design placement under the direction of Ruth Hirsch. Apprentices to Senior Designers and Project Architects. Professional screening and personalized service. References checked, 501 Madison Ave., New York, N.Y. 10022, PL 2-7640.

HELEN HUTCHINS PERSONNEL AGENCY—Specialist: Architecture, Industrial Design-Interior Design and Home Furnishing. Interviews by appointment. 767 Lexington Avenue, New York, N.Y. 10021, TE 8-3070.

LORD-HILL PERSONNEL, LTD.—An agency that is sensitive to the needs of Architectural and Interior personnel, at all levels. Call Bill Shepard for a personal interview and portfolio review by appointment. 565 Fifth Avenue, New York, New York 10017—986-9365.

Spectra-Glaze®

GLAZED CONCRETE BLOCK . . .



THE INHERENT ECONOMIES OF BLOCK . . .

COMBINED WITH THE PERFORMANCE OF GLAZE . . .

- Loadbearing units eliminate expense of back-up wall
- Thru-wall units in 4", 6", 8", 10" & 12" thicknesses
- Fire rating of block construction: 1, 2 or 4 hr.
- Re-inforced or non-reinforced walls
- Excellent sound loss and insulation
- Modular dimensions

® Reg. U.S. Pat. Off., Can. & other countries by
THE BURNS & RUSSELL CO., Box 6063 (P), Baltimore, Md. 21231

Ⓢ Cataloged in SWEET'S



(Scored and Design faces also available . . . Local delivery, world-wide)

REGISTERED ARCHITECT

For diversified projects. Minimum of 5 years' experience in commercial and industrial work. Liberal Benefits Program.

Write in confidence to the Personnel Department, or call (615) 336-2261, Ext. 276.

RUST

THE RUST ENGINEERING CO.
DIVISION OF LITTON INDUSTRIES

P. O. BOX 222
CALHOUN, TENNESSEE 37309

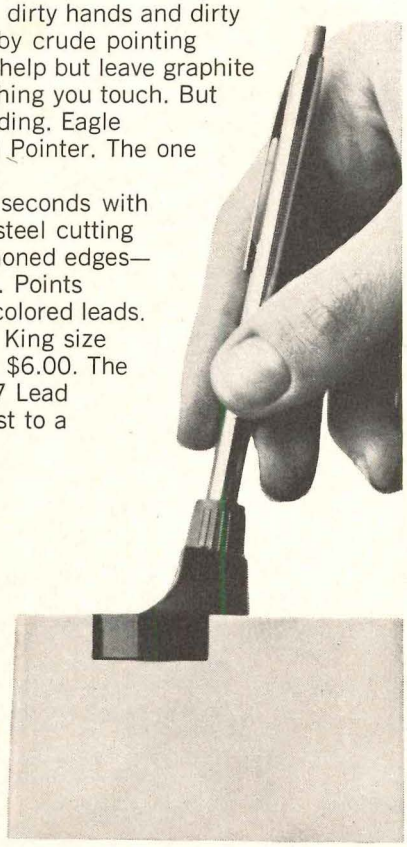
An Equal Opportunity Employer

◀ On Readers' Service Card, Circle No. 407

Psst. Want to hear a dirty story?

It's all about dirty hands and dirty drawings. Made so by crude pointing devices which can't help but leave graphite embedded in everything you touch. But here's the happy ending. Eagle Turquoise #17 Lead Pointer. The one pointer that's clean.

Points in 5 seconds with no dust. Hardened steel cutting wheel with 60 fine-honed edges—stays hard for years. Points graphite, plastic or colored leads. 4 guides, 2 gauges. King size graphite receptacle. $6.00. The Eagle Turquoise #17 Lead Pointer. A clean twist to a dirty story.

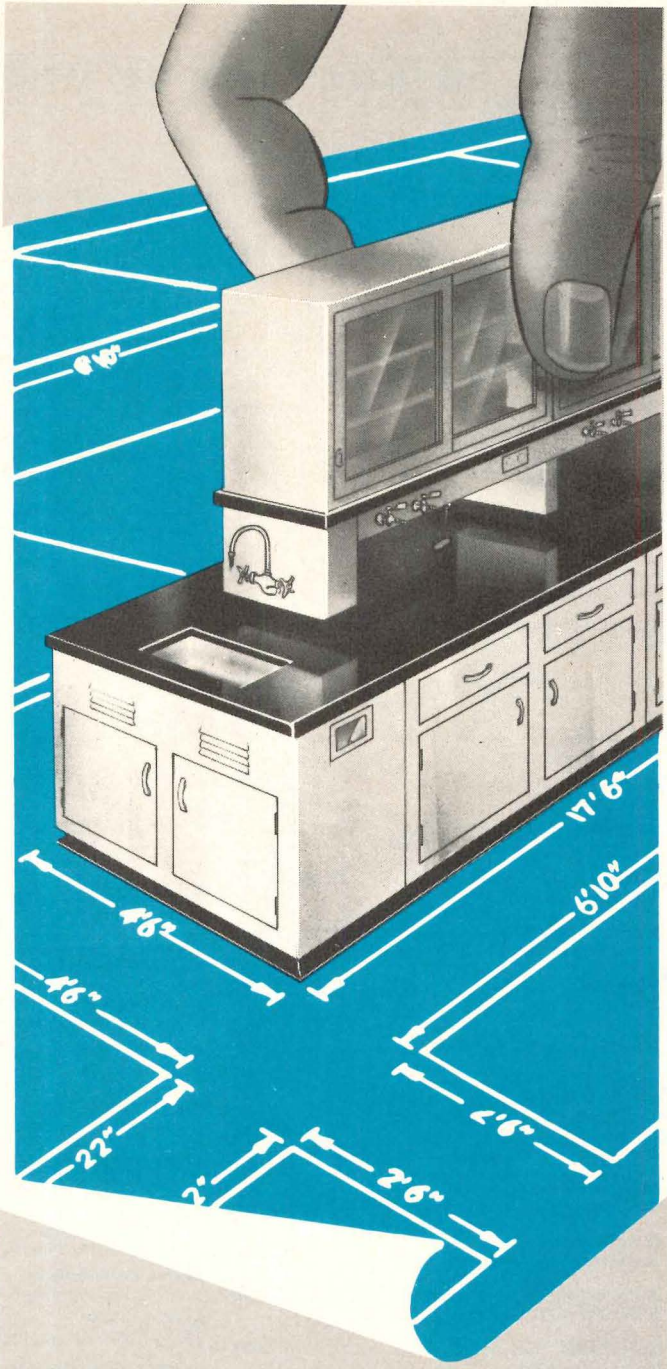


EAGLE PENCIL

A DIVISION OF BEROL CORPORATION. DANBURY, CONNECTICUT, U.S.A.

BEROL

On Readers' Service Card, Circle No. 355



PLANNING AHEAD?

If you are planning or designing a laboratory, take advantage of the Duralab factory-trained engineering team.

They're lab specialists, and will assist you in the planning of your particular lab furniture needs without obligation.

Call or write the Planning Department now.

DURALAB
EQUIPMENT CORPORATION
303 STANLEY AVE., BROOKLYN, N.Y. 11207 / 212 - 649-9600

On Readers' Service Card, Circle No. 402

DIRECTORY OF PRODUCT ADVERTISERS

Acco Wire Products Group, Page Div. 194
Reincke, Meyer & Finn.

Alcan Aluminum Corp. Building Prod. Div. .. 76
Bliss/Grunewald, Inc.

Alliancewall Corp. 63
The Battle-Mallis Agency, Inc.

All-Steel Equipment, Inc. 11
Frank C. Nahser, Inc.

Altec Lansing 73
J. Walter Thompson Co.

American Louver Co. 167
Zylke & Affiliates

Amweld Building Products 163
Nashbar/Osborn & Associates

Anderson Corp. 64, 65
Campbell-Mithum, Inc.

Armstrong Cork Co., Ceiling Systems Dept. . 17
Batten, Barton, Durstine & Osborn, Inc.

Armstrong Cork Co., Flooring Div. .. 1, 2nd Cover
Batten, Barton, Durstine & Osborn, Inc.

Art Metal, Inc. 19
The Zlowe Company, Inc.

Bally Case & Cooler Co., Inc. 185
Beaumont, Heller & Sperling, Inc.

Bethlehem Steel Corp. 35, 36, 37, 38
Van Brunt & Co.

Brunswick Corp., Technical Products Div. .. 207
Garfield-Linn & Co.

Burns & Russell Co. 208
Marc Smith Co.

Samuel Cabot, Inc. 31
Donald W. Gardner Advertising, Inc.

Celotex Corp. 198, 199
Bishopric/Green/Fielden, Inc.

Century Strand, Inc. 66
Wegman Associates

CF&I Steel Corp. 165
Buchen Advertising, Inc.

Checkmate, Div. of Rixon Inc. 50
Motivation Dynamics

Chem Comp National 187
Glenn Advertising, Inc.

Collins & Aikman 154
Gaynor & Ducas, Inc.

Combustion Engineering 46, 47
Coordinated Communications, Inc.

Concrete Reinforcing Steel Institute 14, 15
Fensholt Advertising, Inc.

Conwed Corp. 55, 56
MacManus, John & Adams, Inc.

CPR Division, The Upjohn Co. 212
Langeler Stevens, Inc.

Cramer Industries 67
Bryan Donald, Inc.

Crestline Co. 180
Kinzie & Green, Inc.

Crouse-Hinds Co. 32, 33
Rumrill-Hoyt, Inc.

DAP, Inc. 68, 69
Kircher, Helton & Collett, Inc.

Diazit Co., Inc. 48
Ralph Johnson Associates, Inc.

Duralab Equipment Corporation 209
Harry W. Graff, Inc.

Eagle Pencil Company 209
The Shaller-Rubin Company, Inc.

Eastman Kodak Co., Business Systems Markets Div. 166
J. Walter Thompson Company

Elkay Manufacturing Company 20, 21
The Biddle Advertising Company

Enjay Fibers & Laminates Co., Div. Enjay Chemical Corp. 173
W. B. Doner & Company Advertising

Faber-Castell, A. W. Pencil Company 49
J. M. Kesslinger & Associates

Finestone Corporation 176
Industrial Marketing Service

Fixtures Manufacturing Corp. 156
Sher & Jones, Inc.

Flexicore Company, Inc. 40
Yeck & Yeck, Inc.

Flintkote Co., Van Packer Div. 168
Philip J. Meany Company

Flintkote Co., Pipe Products 202
James William Robertson Agency

Follansbee Steel Corp. 197
George Hill Company

Forma Scientific, Inc. 174
Fahlgren & Associates, Inc.

Georgia Marble Company 57
Lowe & Stevens

Glaverbel, Inc. 147
Alden Advertising Agency, Inc.

W. R. Grace Co., Construction Pro. Div. . 77, 169
Fuller & Smith & Ross, Inc.

Grant Pulley & Hardware Corp. 164
Cove Advertising

Grefco, Inc. 4, 5
Boylhart, Lovett & Dean, Inc.

Gregson Mfg. Company 207
Kenbert, Inc.

Fritz Hansen, Inc. 176
Abner E. Kohn Associates, Inc.

Harter Corporation 16
J. G. Sullivan & Advertising, Inc.

Hercules, Inc. 179
Marschalk Company, Inc.

Hillyard Chemical Company 150
Ayres & Associates, Inc.

Holophane Company, Inc. 170, 171
Turner & Feeney, Inc.

Hunt Electronics Company 61
McCrary-Powell Advertising, Inc.

Imperial Wallpaper Mill, Inc. 203
Brand Advertising

Inland-Ryerson Construction Co. 192
Hoffman-York, Inc.

Integrated Ceilings, Inc. 204, 205
Keye/Donna/Pearlstein

Jennison Wright Corporation 159
Phillipps Associates, Inc.

Johnson Service Company ..... 4th Cover
Hoffman-York, Inc.

Kaiser Company — Mirawal 175
Young & Rubicam, Inc.

Kathabar Systems, Ross Engineering Div. ... 48
Sanger-Funnell, Inc.

Kawneer Company 23, 24, 25, 26, 27
The Biddle Company

Kimberly-Clark Corporation 54
Van Handel Company

Knoll International 149
Chirurg & Cairns, Inc.

LCN Closers 70, 71
Alex T. Franz, Inc.

Limestone Products Corp. of America 52
Edward Owen & Company

Ludowici-Celadon Co. 181
Scott & Scott Advertising, Inc.

Lundia Myers Industry, Inc. 188
Hall, Haerr, Peterson & Harney, Inc.

Mahon, R. C. Company 6, 7
Gray & Kilgore, Inc.

Master Builders 118, 119
The Jayme Organization, Inc.

Matthiessen & Hegeler Zinc Co. 155
Kenneth B. Butler & Associates

McPhilben Lighting — Emerson Electric 151
McClure Advertising, Inc.

Medusa Portland Cement Company 152, 153
Will, Inc.

Mo-Sai Institute, Inc. 72, 73
David W. Evans & Associates

Musson, R. C. Rubber Company 176
Fred Bock Advertising Company

NuTone Div. of Scovill 195, 196
Baer, Kemble & Spicer, Inc.

Olympic Stain Company 191
Kraft, Smith & Lowe, Inc.

Pass & Seymour, Inc. 172
Conklin, Labs & Bebee, Inc.

Patcraft Mills, Inc. 193
Bearden Associates, Inc.

Pella Rolscreen Co. 157, 158
L. W. Ramsey Advertising Agency

Pemko Manufacturing Company 54
Svenson & Associates

Pittsburgh-Corning — Foamglas 184
Ketchum, MacLeod & Grove, Inc.

Porter, H. K. Co., Inc. 51
Ketchum, MacLeod & Grove, Inc.

PPG Industries, Inc. 12, 13
Ketchum, MacLeod & Grove, Inc.

Red Cedar Shingle & Handsplit Shake Bureau 42
N. W. Ayer/F. E. Baker, Inc.

Republic Steel Corporation 183
Meldrum & Fewsmith, Inc.

Rigidized Metal Corporation 200
John E. Hayes Company, Inc.

Rohm and Haas Co. — Plastic Div. 189
Arndt, Preston, Chapin, Lamb & Keen, Inc.

Ronan & Kunzl, Inc. 48
Columbia Advertising, Inc.

Rust Engineering Company 208
Lando, Inc.

San Valle Tile Kilns 18Wa
Weinberg Advertising Company

Sargent & Company 58, 59
Hepler & Gibney, Inc.

Schmidt, C. Company 62
Schindler, Howard & Raut Advertising, Inc.

Shooting Equipment, Inc. 54
Moody & Harrison, Inc.

Sloan Valve Company 145
Reincke, Meyer & Finn, Inc.

Southern California & Southern Counties Gas Co. 18Wb, 18Wc
Doyle, Dane & Bernbach, Inc.

Sta-Crete, Inc. 211

Stanley Hardware Div. of the Stanley Works . 177
Wilson, Haight & Welch, Inc.

Steel Deck Institute Inc. 190
Karl McKenzie & Assoc. Inc.

Symons Mfg. Company 66
J. W. Evans, Inc.

Thermoproof Glass Company 60
Film Associates of Michigan, Inc.

Tremco Mfg. Company — Construction Div. . 22
Carr Liggett Advertising, Inc.

Trinity White, General Portland Cement Co. ..... 3rd Cover
Glenn Advertising, Inc.

Trus-Joint Corporation 53
Cline Advertising Service, Inc.

Tyler Pipe Industries 182
Clark, Garner, Lovelace Advertising, Inc.

United States Gypsum Company 201
Geyer-Oswald, Inc.

United States Plywood Corp. 9, 10, 178, 186
Young & Rubicam, Inc.

Weis, Henry Mfg. Company 44
Ash Advertising, Inc.

Weyerhaeuser Company 74, 75
Cole & Weber, Inc.

Wiegand. Edwin L. Division 18
Griswold-Eshleman Company

Wilkinson Chutes, Inc. 16
Carpenter, Lamb & Herrick, Inc.

Wilson, Ralph Plastics 160, 161
Jack T. Holmes & Associates

Wiremold Company 162
Charles Brunelle Company

Zonolite Construction Pro. Div. 77, 169
Fuller & Smith & Ross, Inc.

ADVERTISING SALES OFFICES

Progressive Architecture — **Reinhold Publishing Corp.**

Wolcott H. Johnson, Advertising Sales Manager

New York Office
600 Summer Street, Stamford, Conn.
203-348-7531
District Managers **William F. Bondlow**, **Michael J. Hanley**

Philadelphia Office
12 So. 12th Street 215-922-0346
District Manager **John A. Teefy**

Pittsburgh Office
601 Grant Street 412-281-9421
District Manager **Albert E. McClimans**

Chicago Office
10 So. LaSalle Street 312-726-1282
District Managers **Charles E. Durham, Jr.**, **James J. Hoverman**

Cleveland Office
1717 E. 9th Street 216-771-4011-12-13
District Manager **John F. Kelly**

San Francisco Office
Jobson, Jordan, Harrison & Schulz, Inc.
57 Post Street 415-392-6794
Representatives **Charles S. Harrison**, **Cyril B. Jobson**

Los Angeles Office
Jobson, Jordan, Harrison & Schulz, Inc.
1901 W. 8th Street 213-483-8530
Representatives **Kenneth E. Jordan**, **Peter Schulz**

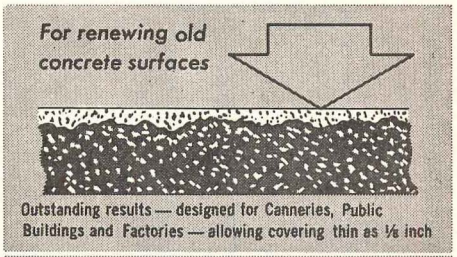
Atlanta Office
Robert L. Watkins Associates
505-805 Peachtree Bldg. 404-874-6427
Representative **Harmon L. Proctor**

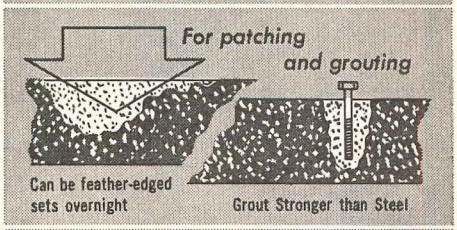
Tokyo Office
International Media Representatives, Ltd.
2-4, 6-Chome Akasaka, Minatoku
Representative **Sumio Oka**

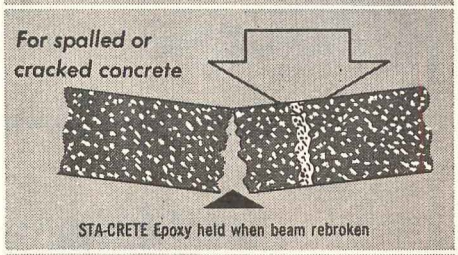
STA CRETE *"Experienced"* **EPOXIES** *for maintenance*

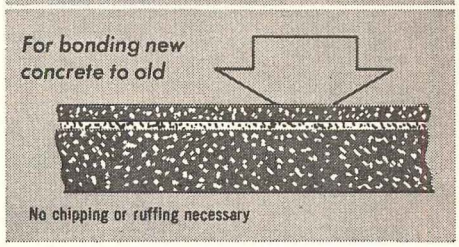
surfaces ready for traffic within hours

Now "experienced" formulas for specific problems...
CONCRETE TO CONCRETE TO WOOD TO METAL









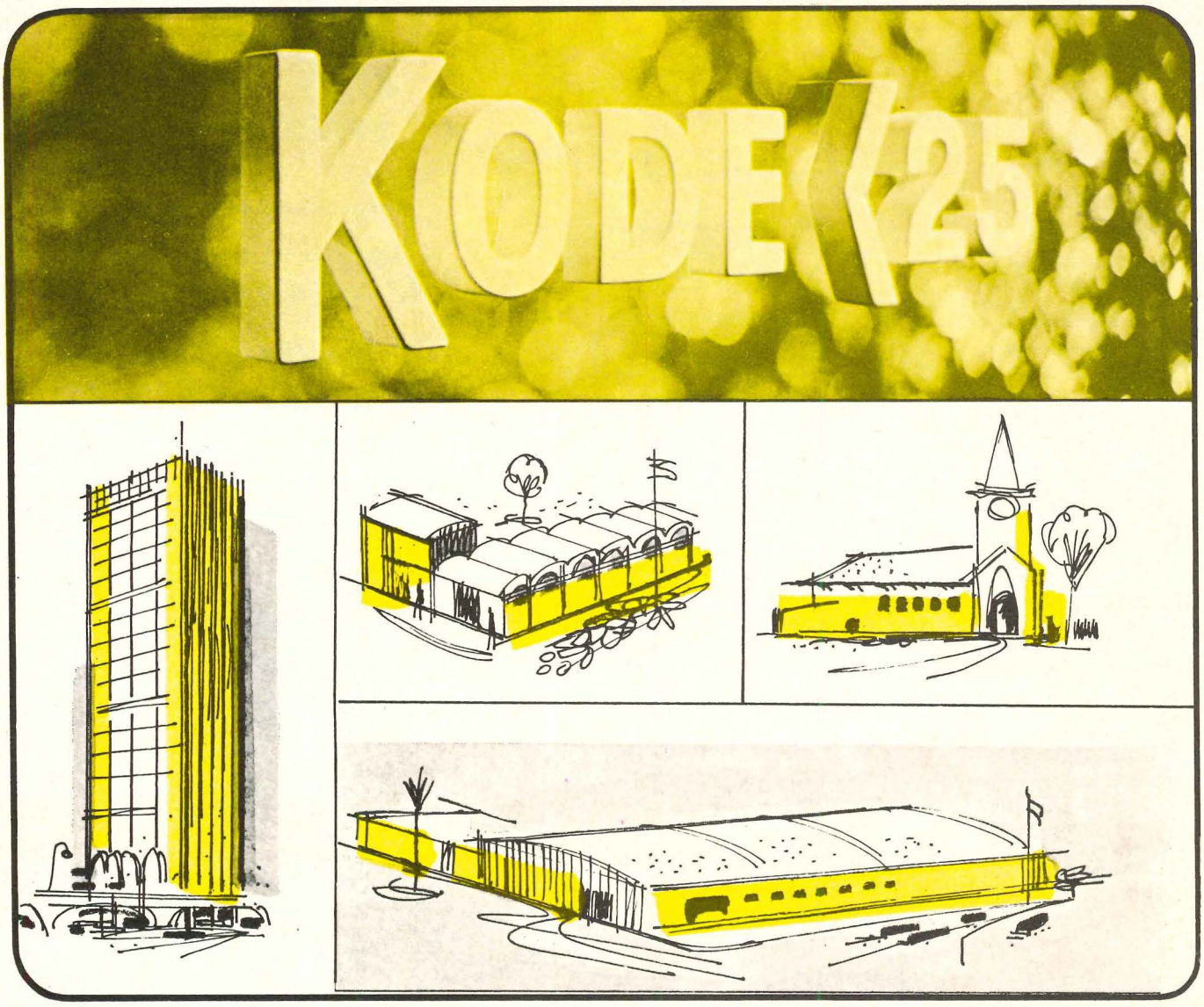
COLOR
14 decorator colors in stock. Match color available in quantity.

ALSO IN COLORS
Synthetic rubber caulking compounds for expansion joints and window glazing.

RELIABLE
Test Patch—you'll be convinced. Trial kit $2.00 to cover handling.

FREE
Brochure and specific data information available upon request.

STA-CRETE, INC.
893 Folsom St., San Francisco, Calif. 94107
On Readers' Service Card, Circle No. 408



A New Generation of Materials

UPJOHN HAS ACHIEVED A BREAKTHROUGH IN INSULATION... AND NAMED IT KODE <25

KODE <25 is a new, urethane-type rigid foam insulating material for the construction industry.

Here is the big news: **KODE <25** is listed by Underwriters' Laboratory, Inc. with a Fire Hazard Classification Flame Spread Rating of 25 according to UL 723 and ASTM E-84 test method (UL Tunnel Test). This means you can add a higher fire retardance and temperature tolerance (300°F) to the list of advantages you get with Upjohn urethane insulation. It also means you can meet most building code specifications.

Compare these qualities with any other commercial insulation: almost twice the thermal insulation efficiency of its closest competitor. Low moisture-vapor permeability. High strength. Extremely light. Dimensionally stable. Permanent. Easy to install. Unaffected by fungus or mildew. Will not sag, pack, or crumble. Odorless. Economical. And now add... a higher temperature tolerance.

Available as board stock in thicknesses up to 3 inches with a UL label.

*TRADEMARK (Code: Less than 25)

See Sweets Catalog

Upjohn
chemicals plastics research
CPR

CPR DIVISION
THE UPJOHN COMPANY
555 Alaska Avenue, Torrance, California 90503
(213) 320-3550

SPECIFY KODE <25. Mail coupon for information.

For Board Stock or Pipe Lagging, Contact us. CPR is in your backyard.

☐ Please send information on **KODE <25.**

☐ Please have local Fabricator or CPR Sales Engineer call on me.

name, position

company

address

On Readers' Service Card, Circle No. 394



Credits: Third National Bank Bldg., Nashville, Tenn.; *Architect:* Brush, Hutchison & Gwinn; *Gen. Contractor:* Henry C. Beck Co.; *Terrazzo Contractor:* Art Mosaic & Tile Co.

The matchless elegance of terrazzo...
(and twenty years from now, this floor will look even greater!)

Little wonder that Portland cement terrazzo has captured the fancy of most architects and building owners throughout the world. There's simply no other flooring material like it. Only terrazzo offers such a multiplicity of decorative possibilities. Only terrazzo is durable enough to take tremendous traffic punishment for many years and bounce back looking more beautiful than ever. And only terrazzo virtually eliminates any maintenance worries . . . ever.

In some instances, the initial cost of terrazzo is slightly higher than the next best wearing flooring material. But because of its longevity, terrazzo has been proven to have the lowest cost per year of life of any flooring material — bar none.

The most striking terrazzo today is made with Trinity White Portland Cement. Trinity White imparts its own special color fidelity to the terrazzo, whether the matrix is white or tinted. Color combinations emerge brighter, more compelling.

In short, terrazzo communicates.

Specify it for all your designs, and so will you.

Trinity White

PORTLAND CEMENT

Write for new color brochure showing 24 popular terrazzo samples.

GPCC®

A PRODUCT OF GENERAL PORTLAND CEMENT COMPANY

OFFICES: DALLAS • HOUSTON • TAMPA • MIAMI • CHATTANOOGA • FORT WAYNE • KANSAS CITY, KAN.

On Readers' Service Card, Circle No. 350

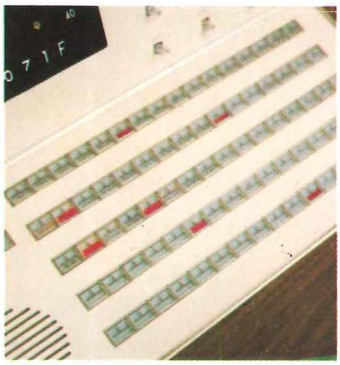
The basic difference in control centers:

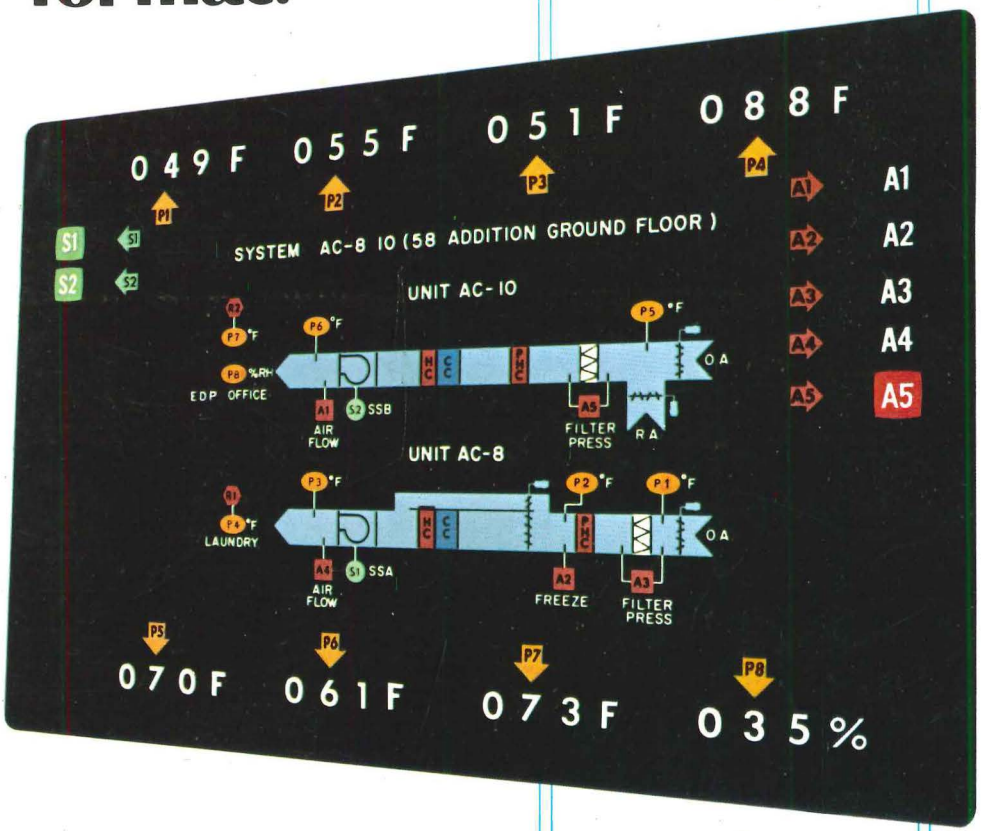


our exclusive new system format.

RECEIVED
APR 21 1970
Winecoff & Tooly, Inc.







System Format. The exclusive difference in information and alarm display concepts that separates our control centers from the ordinary.

Other control centers force you to check all data inputs and alarms point by point. And to remember a jumble of codes and values.

With Johnson, all monitored information is displayed system by system. A system diagram and all its monitored points appear simultaneously on a common data display screen. No coded information. No point-by-point interrogation. No possibility of confusion.

And all alarm pilot lights are consolidated on a system basis for immediate operator response. No shared alarm lights to delay the alarm signal. Result: the System Format alarm bank shows the operator if a system needs attention. Now. And keeps reminding him (visually and audibly) until it is acknowledged or corrected.

Johnson installs a control center matched to your exact needs. A basic unit that includes only the features you really need. Nothing more. Nothing less. And the system is easily expandable whenever necessary.

Write today for complete information on the basic difference in control centers. System Format. Operator-oriented building automation by Johnson.

JOHNSON SERVICE COMPANY
MILWAUKEE, WISCONSIN • 53201

On Readers' Service Card, Circle No. 380